NEVADA 2000
EXHAUST EMISSIONS
& OBD II
ANALYZER

Nevada Department of Motor Vehicles

Emission Control Labs

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NEVADA 2000
EMISSIONS ANALYZER

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NEVADA 2000 EMISSIONS ANALYZER

Thorough knowledge of the NV2000 emission analyzer is essential for an individual to obtain an Approved Inspector license. The Department has compiled this workbook noting the different aspects of the machine and program that applicants should review before attempting the “hands on” practical examination. We suggest that applicants take the time to familiarize themselves with the analyzer to include some practice in the “training mode”. Included in this workbook is an applicants guide to the practical and a checklist of some items the applicant may be tested on. Even though the Department has prepared this comprehensive workbook for the NV2000 analyzer, there may still be some instances when an individual may need to arrange training conducted by a representative of Worldwide Environmental, the NV2000 Analyzer manufacturer.

INTRODUCTION TO THE NEVADA 2000 EMISSIONS ANALYZER

- After studying the information in this program you should be able to:
- Correctly start up and operate the Worldwide analyzer.
- Perform a 72 hour calibration and leak check.
- Change calibration gas bottles.
- Locate and inspect the filters,screens and water traps.
- Access and operate the printer.
- Perform a Data File Refresh
- Access the Status Screen
- Access the Station Manager menu
- Access OBD II Diagnostic screens
- Perform a vehicle inspection

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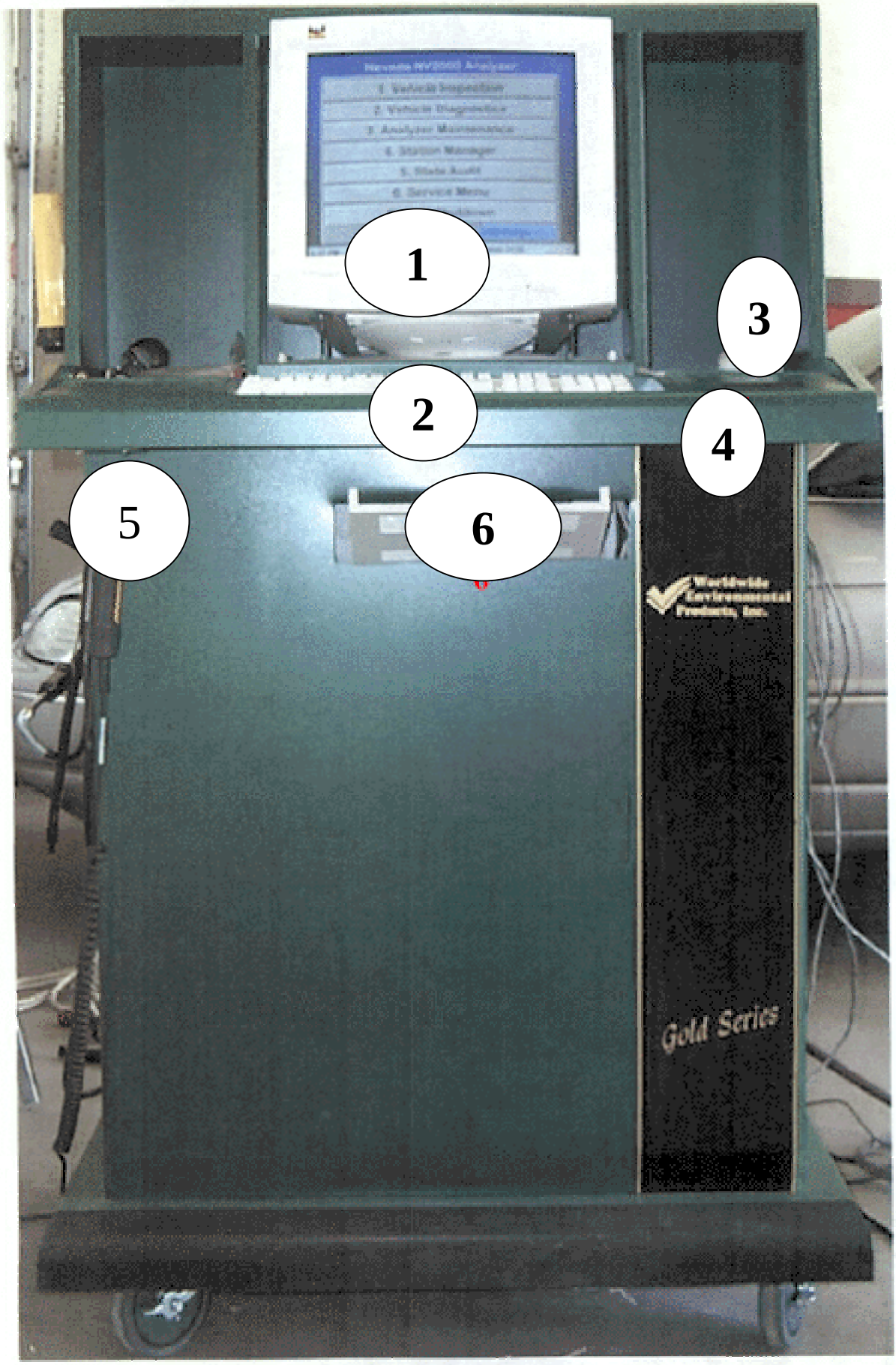
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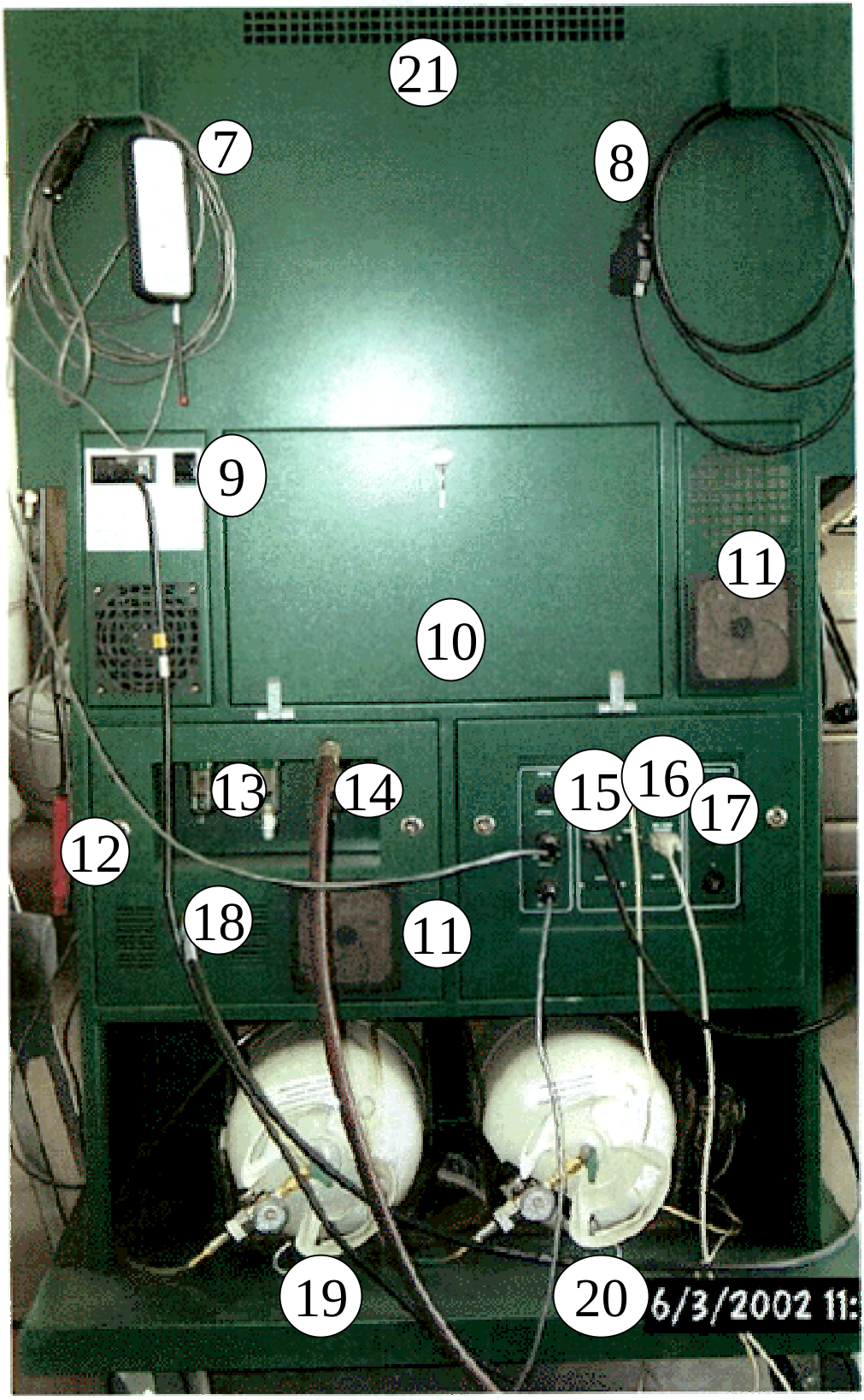
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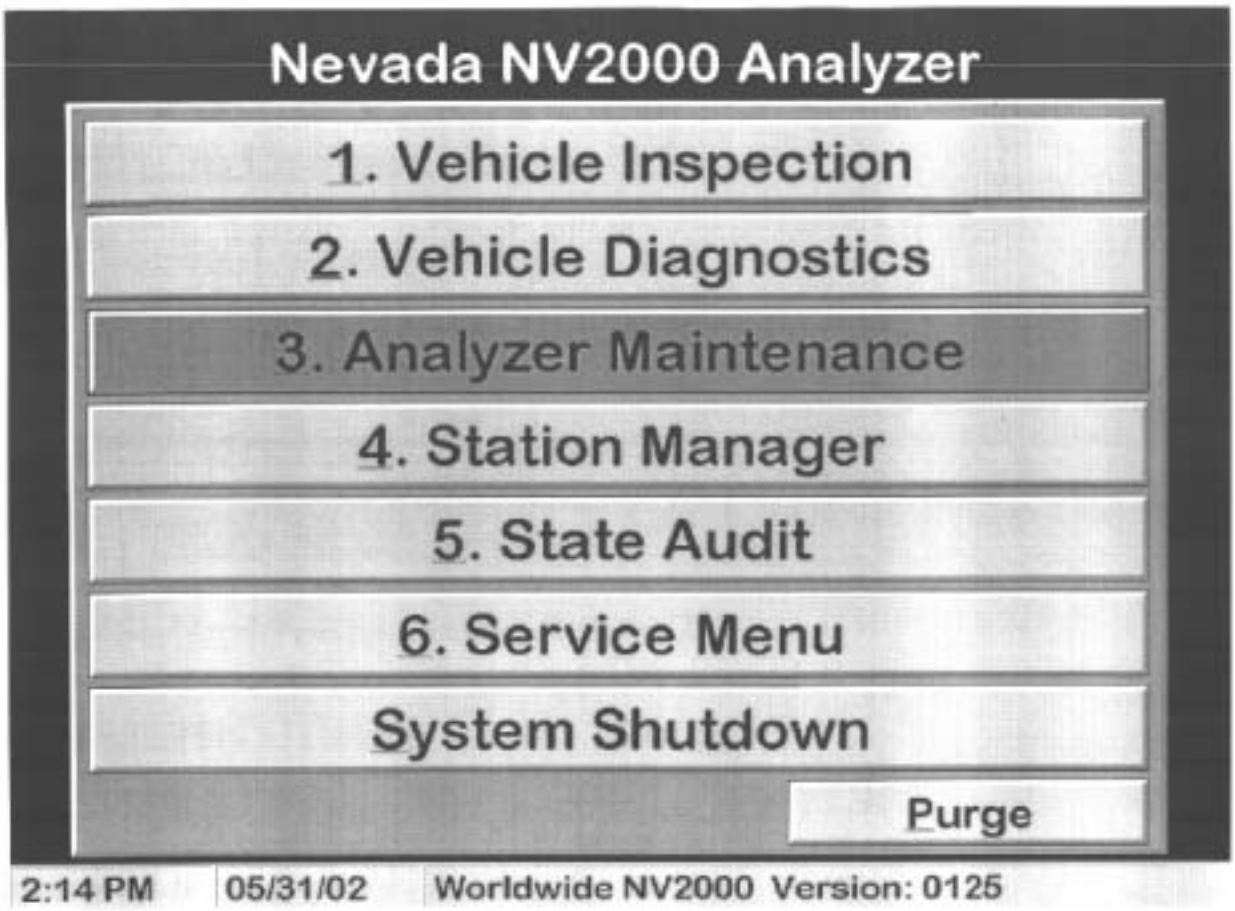
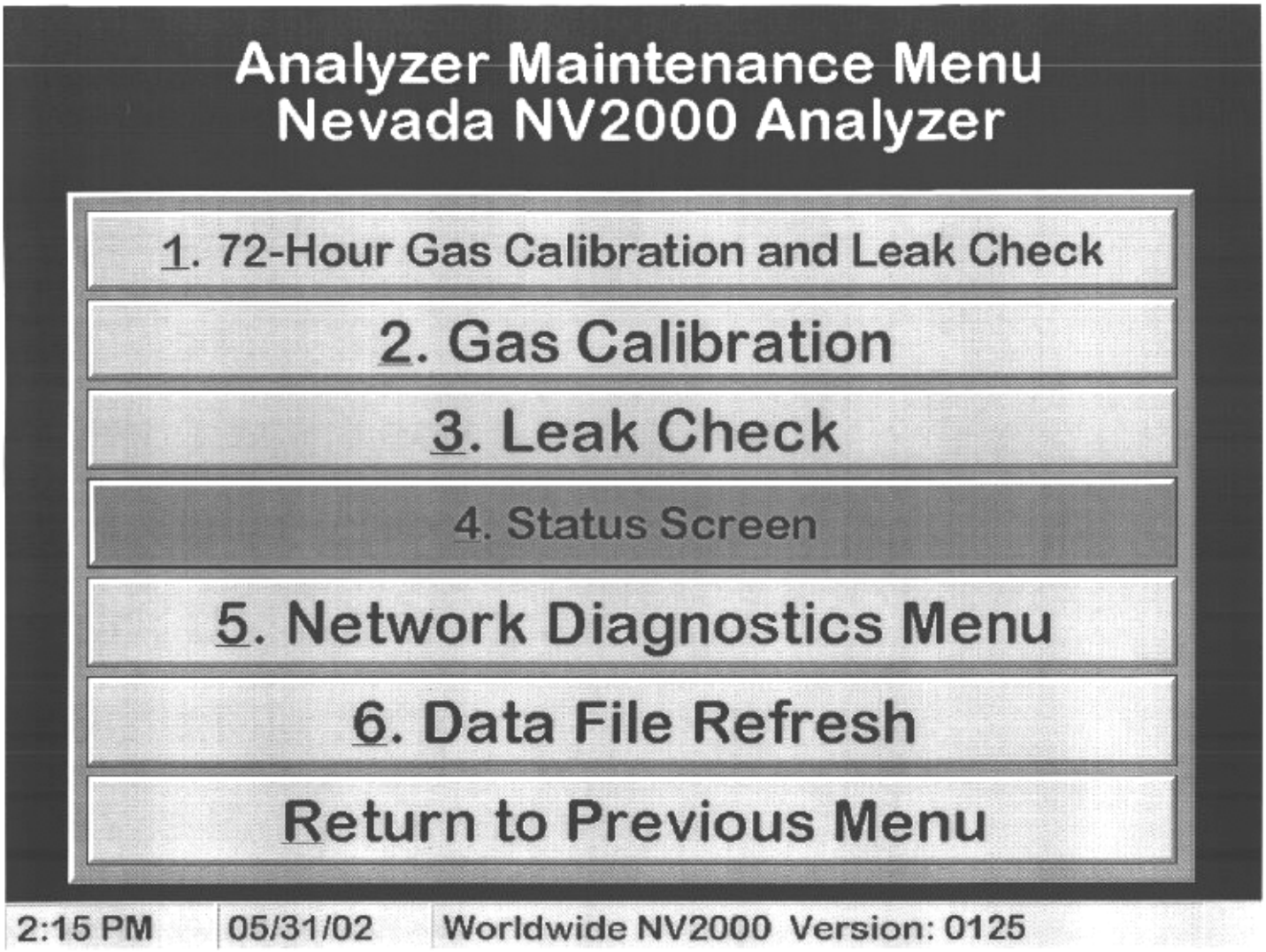
HOW TO START UP THE WORLDWIDE ANALYZER

- Turn main power switch on the back of the analyzer to the on position.
- The small view meter/no signal screen will come up on the monitor.
- Push the A button on the back of the analyzer. (AIR WILL PURGE FROM THE ANALYZER!)
- The machine will now begin startup and communicate with the Worldwide site.
- When communications are complete the main menu will appear.

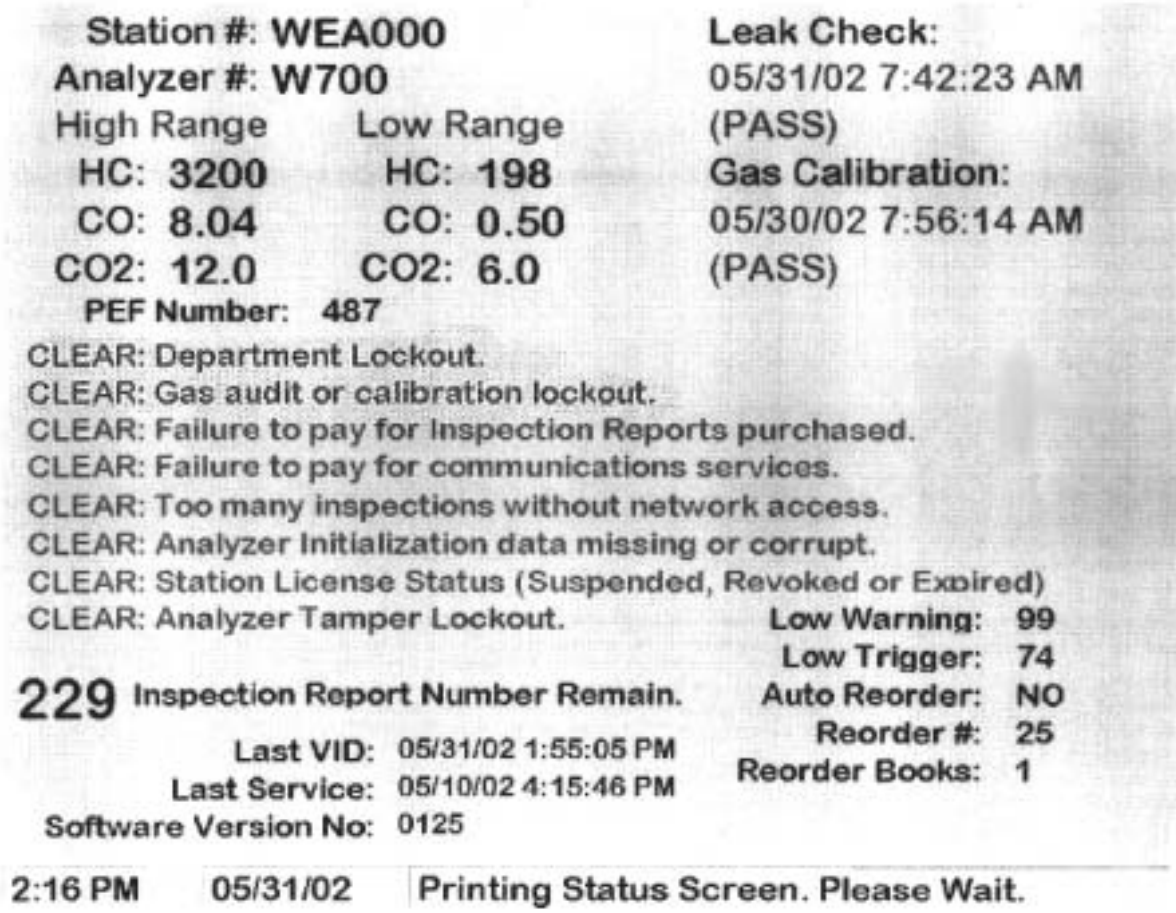
Status Screen



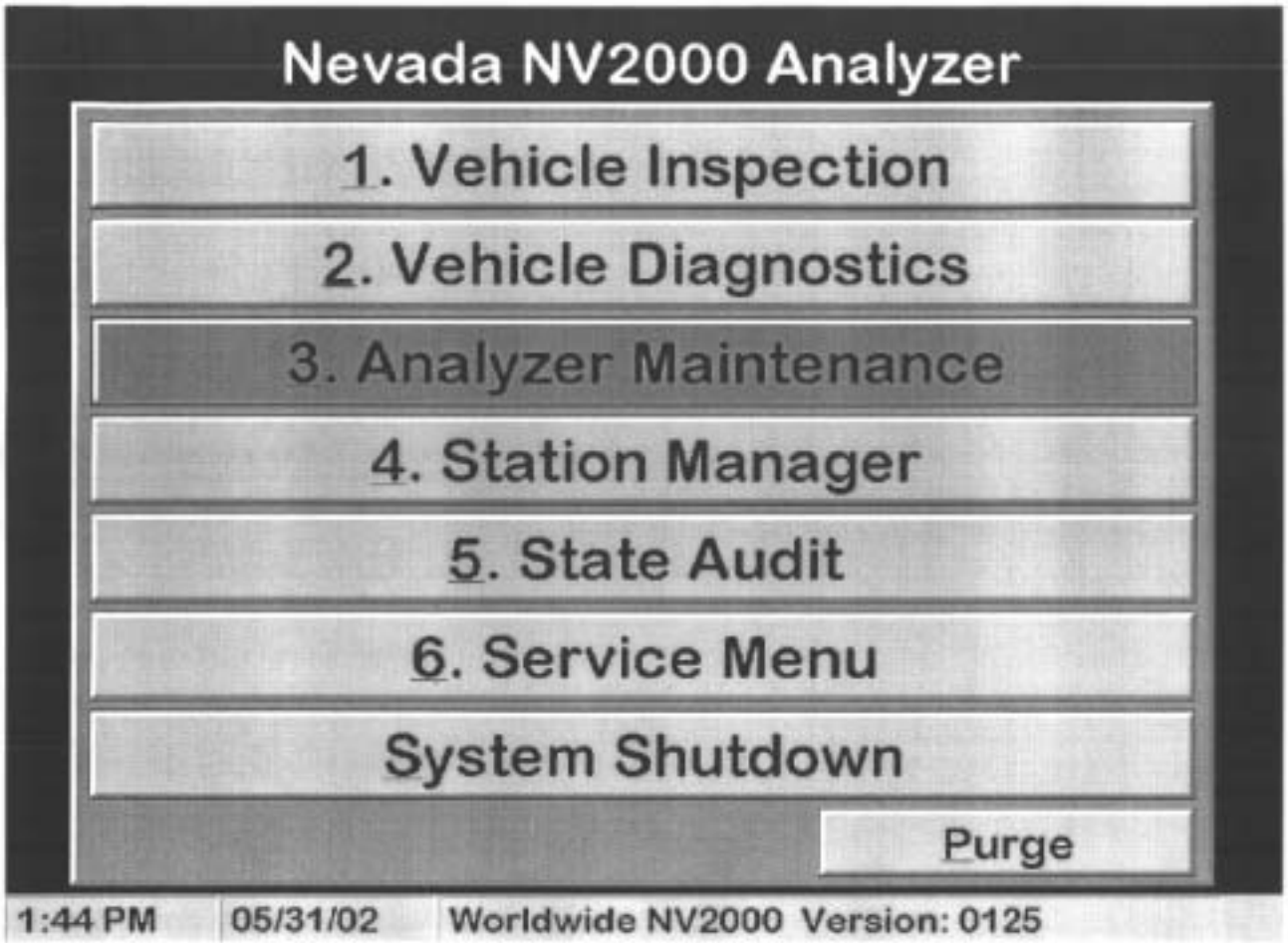
- The status screen can provide details on analyzer and station operation information. To enter the status screen click on Analyzer Maintenance.



- When this screen appears click on number 4 Status Screen.



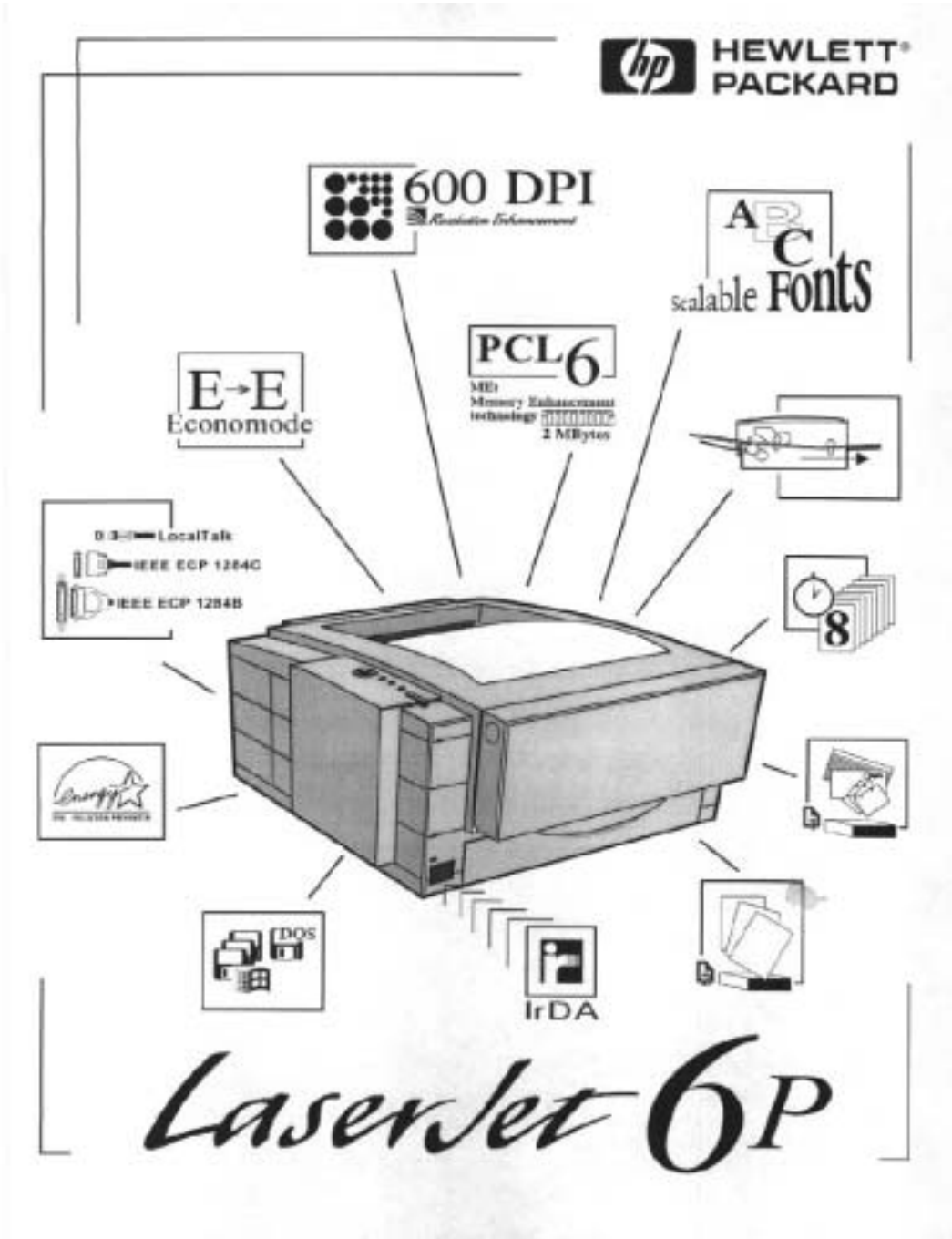
- All the current information on the analyzer is now displayed.
- You can check lock out status,VIRS remaining,last leak check and gas calibration,analyzer and station numbers and last gas audit specs.

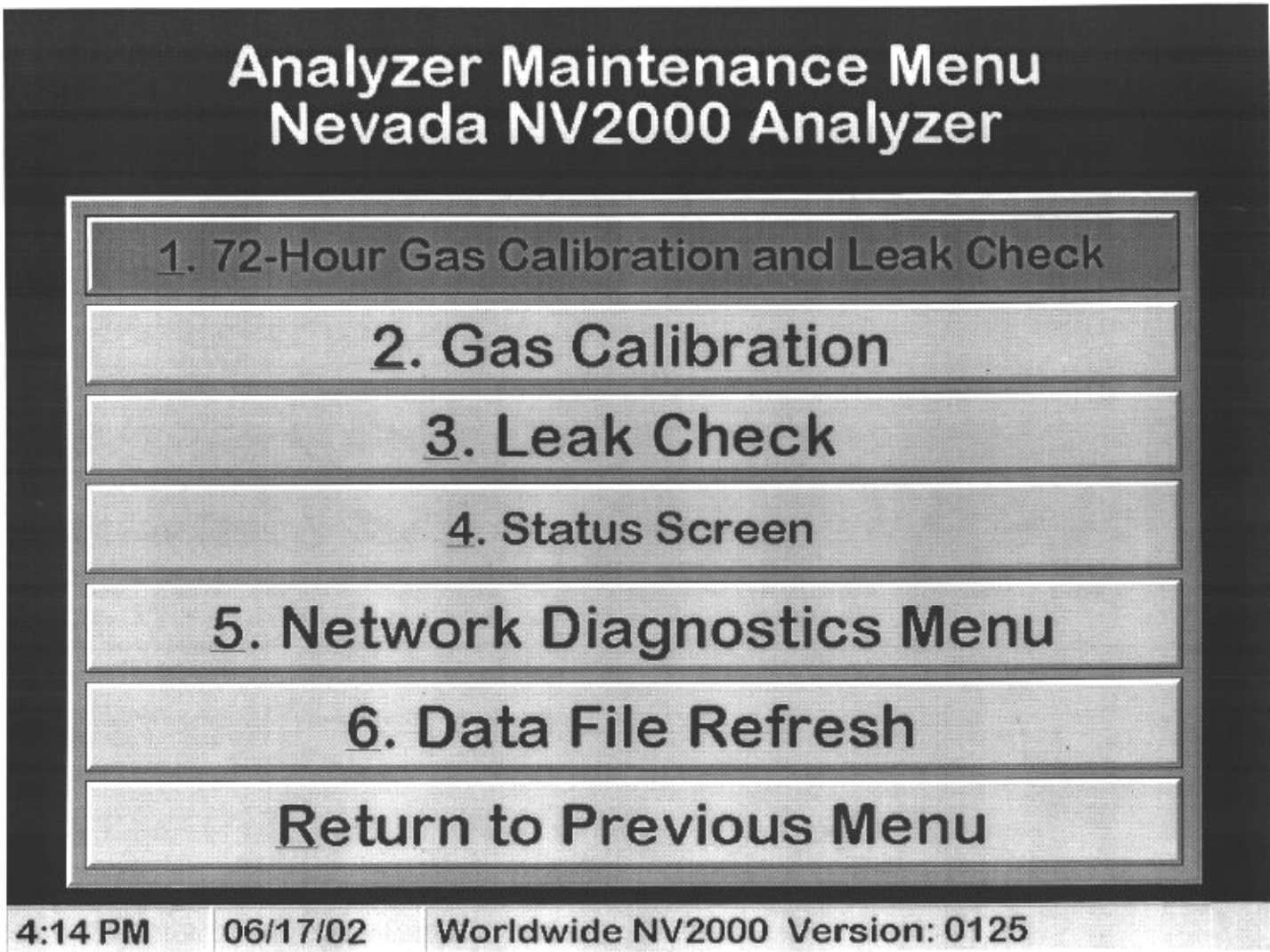


ANALYZER MAINTENANCE and TROUBLESHOOTING

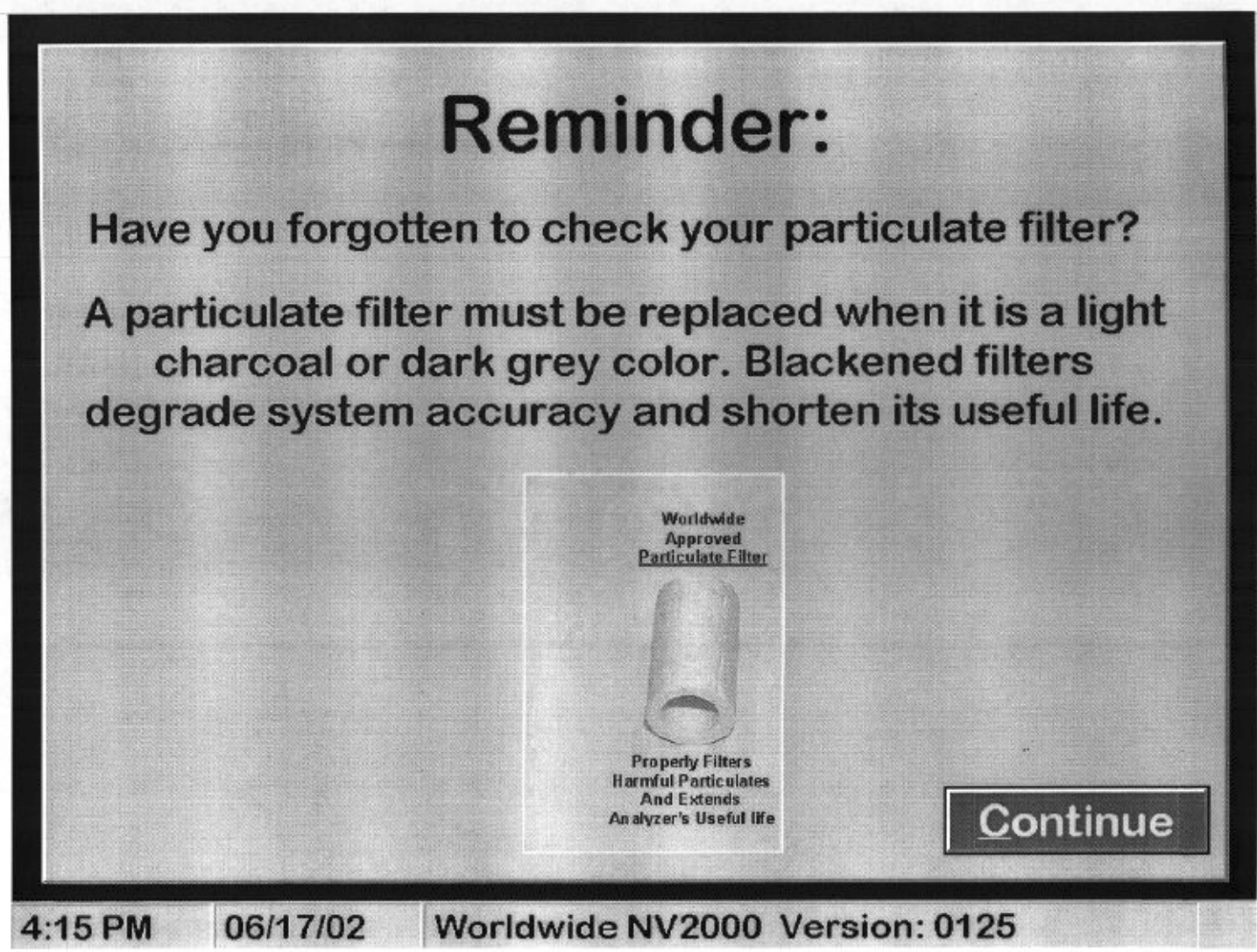
- **PRINTER PAPER REPLACEMENT**
- **DEPENDING ON PRINTER**
  - Open printer access door (refer to #10 on analyzer rear view)
  - Slide paper tray out (may require slightly lifting the printer)
  - Add paper to the tray making sure it fits flat. Close the tray and push the round button on the top left side of the printer.

Familiarize Yourself With Your' Printer

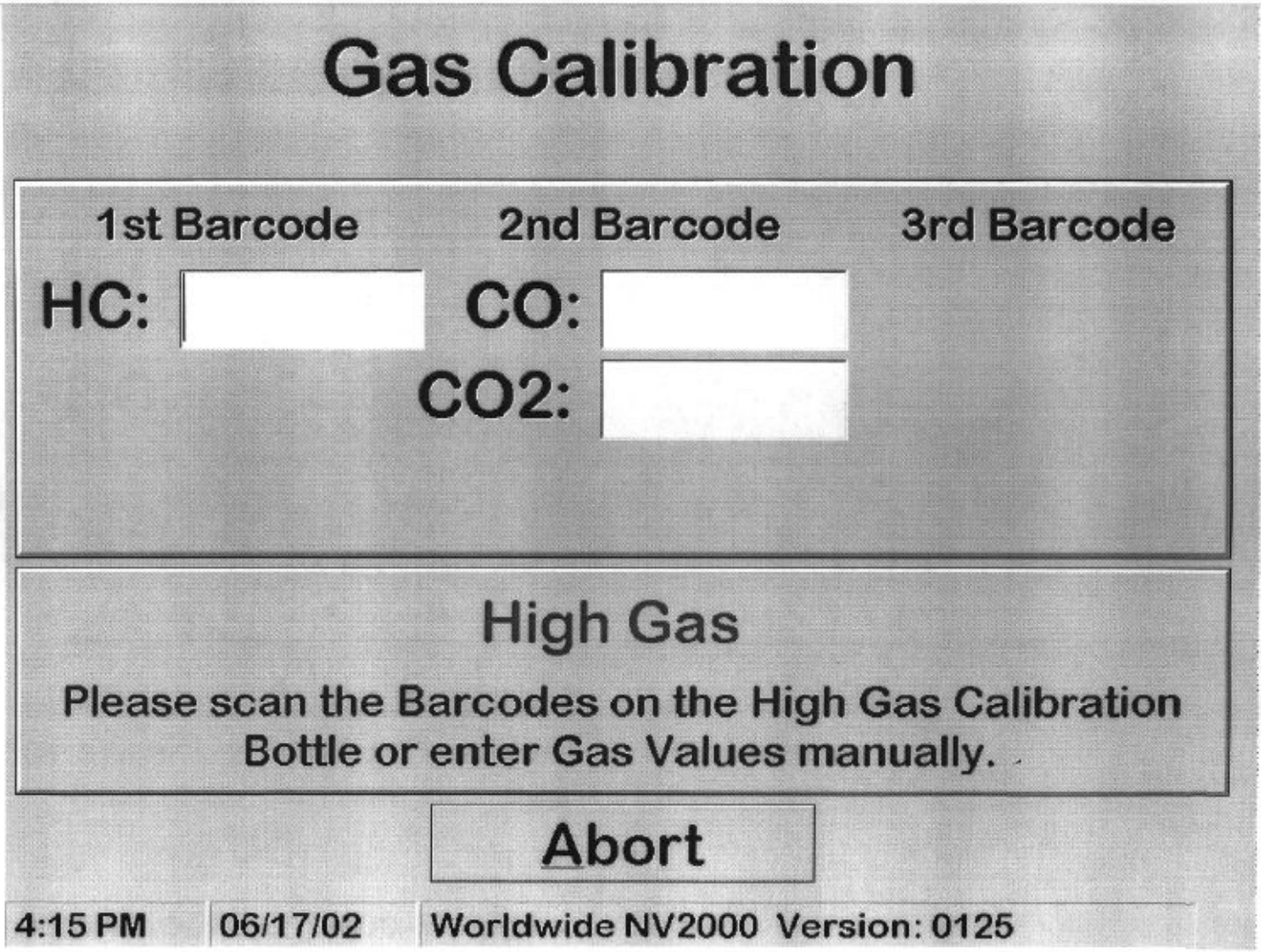




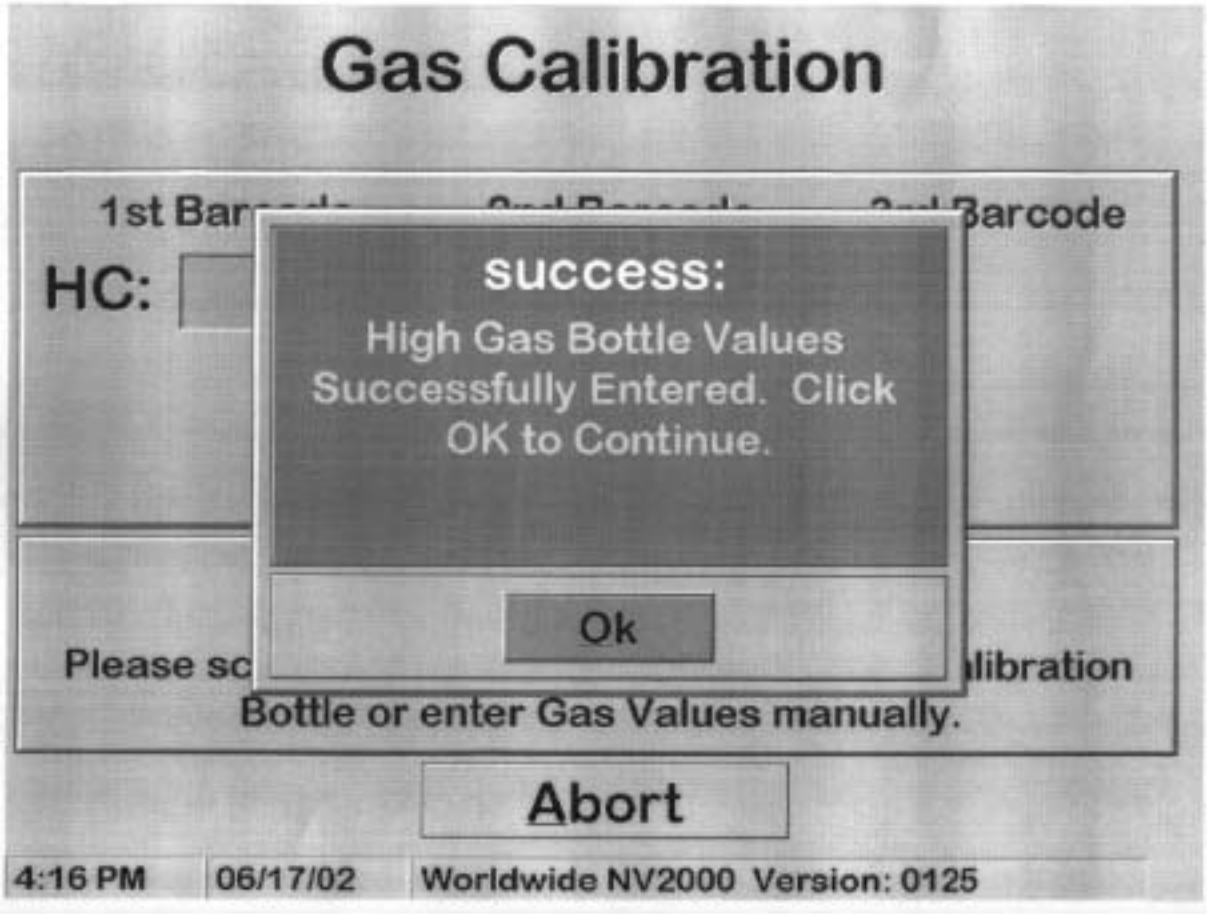
- Every 72 hours the Worldwide analyzer will require a 72 hour calibration. A leak check is also required on a daily basis as well as every 72 hours.
- To perform a 72 hour calibration the analyzer must be turned on and fully warmed up.Start by clicking on 72 hour gas calibration and leak check bar in main menu.



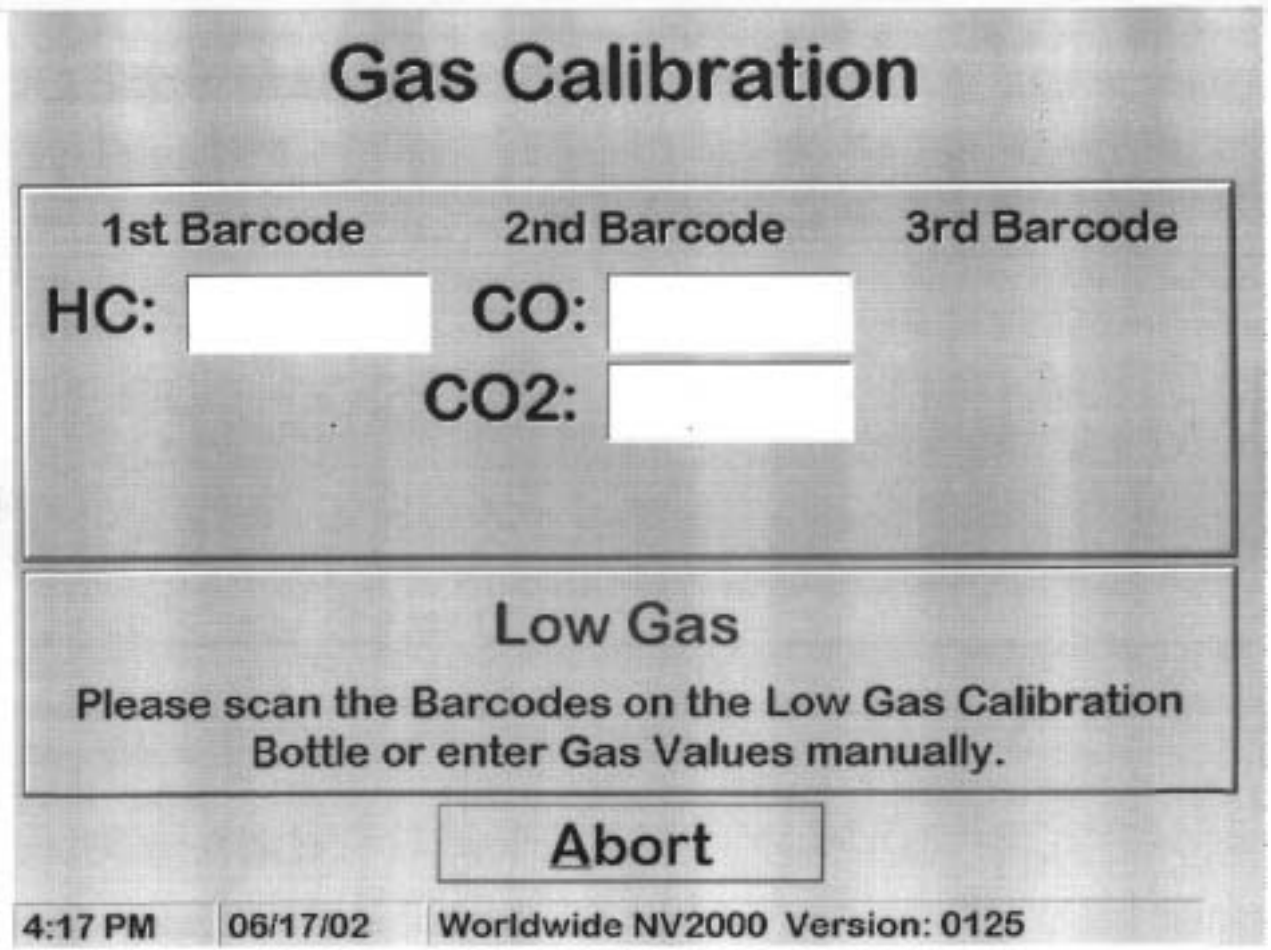
- A reminder to check your filters will come up on the screen. If your filters are a light charcoal to a dark grey color, remember to replace them or system performance may be affected.



- Next you must enter the calibration values for the high gas. Remember the Worldwide analyzer uses BAR97 calibration gas only.You can scan the bar codes on the high gas bottle using the bar code scanner or you may read the bottle label and make the value entries using the keyboard.When using the scanner remember one trigger pull for each row of characters.



- A beep will be heard and a green light will come on when the scan has been entered. Press the enter key to accept the values or try again if the values are incorrect.



- Next follow the same procedure on the low gas bottle.
- If labels are damaged or unscanable manually enter the values as shown on the following pages

CALIBRATION GAS BOTTLE LABELS

BLEND CODE 34 97 HIGH W/O NO

CONCENTRATION

CERTIFIED BLENDER

3200ppm C3H8

N/A ppm THC BAR # SA00123126

8.04 % CO LOT # 11082001

12.0% CO2 FILLED- 11082001

N/A ppm NO EXPIRES- 1108004

N/A% 02

BALANCE N2 Accuracy: +/- 1%

Bureau of Automotive Repair Department of Consumer Affairs

- The correct **HIGH** gas values, to be entered, based on the label above are:
  - 3200 ppm H/C
  - 8.04 % CO
  - 12.0 % CO2

CALIBRATION GAS BOTTLE LABELS

BLEND CODE 31 97 LOW W/O NO

CONCENTRATION

CERTIFIED BLENDER

199 ppm C3H8

N/A ppm THC BAR# SA01152332

0.50 % CO LOT # 013020022

6.0 % CO2 FILLED- 013020022

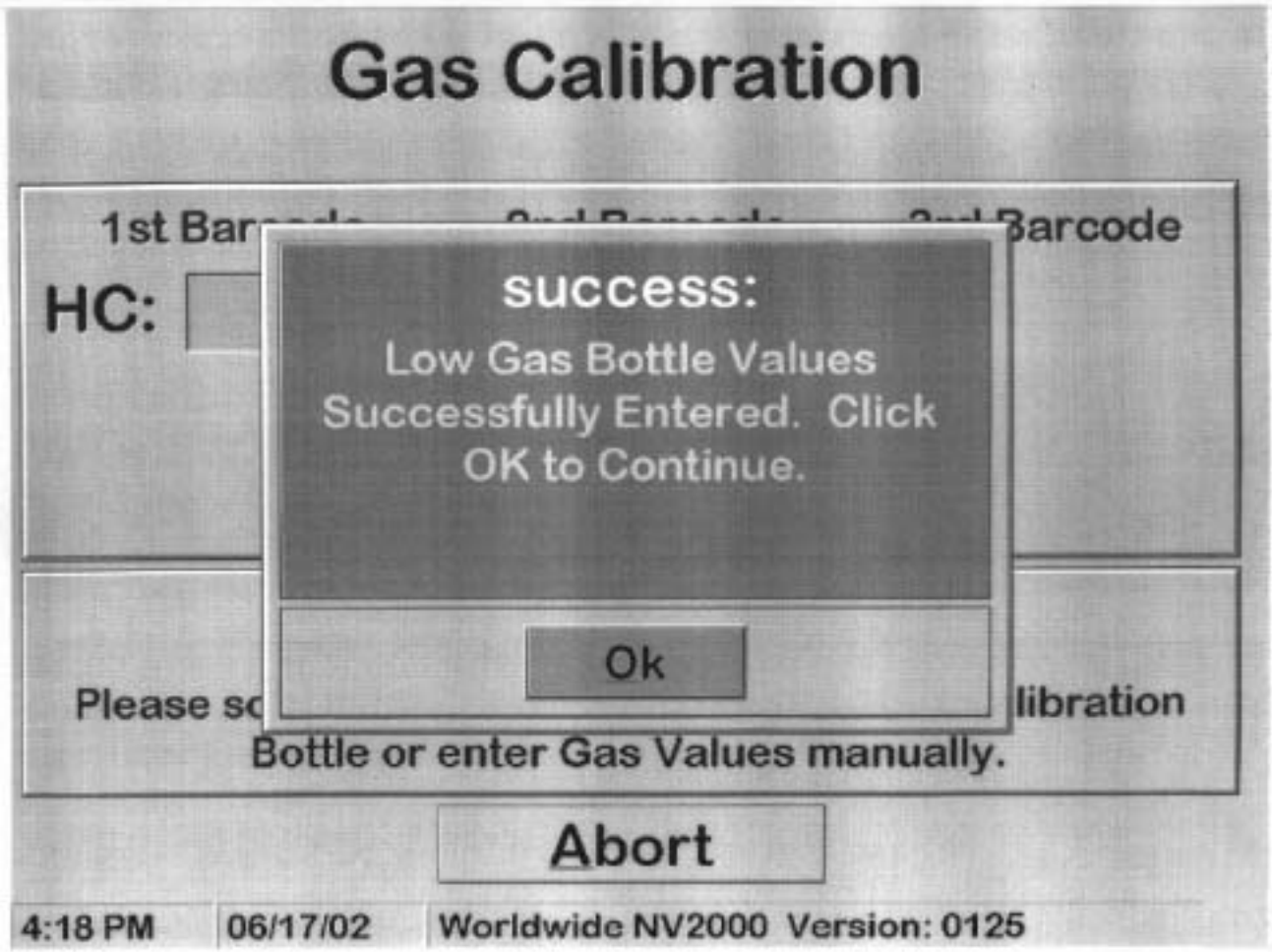
N/A ppm NO EXPIRES- 01302005

N/A % 02

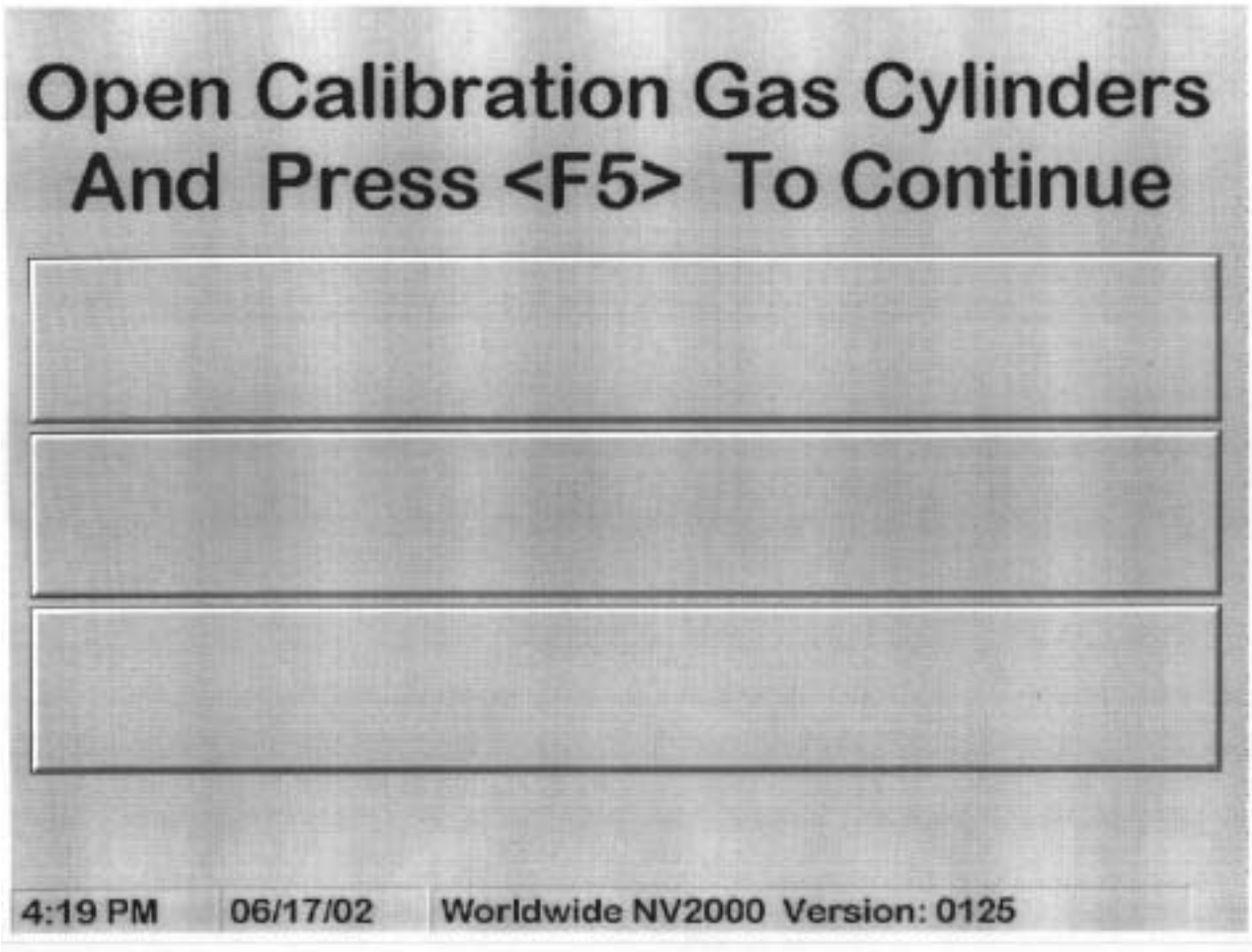
BALANCE N2 Accuracy: +/- 1%

Bureau of Automotive Repair Department of Consumer Affairs

- The correct **LOW** gas values, to be entered , based on the label above are:
- 199 ppm H/C
  - 0.50 % CO
  - 6.0 % CO2

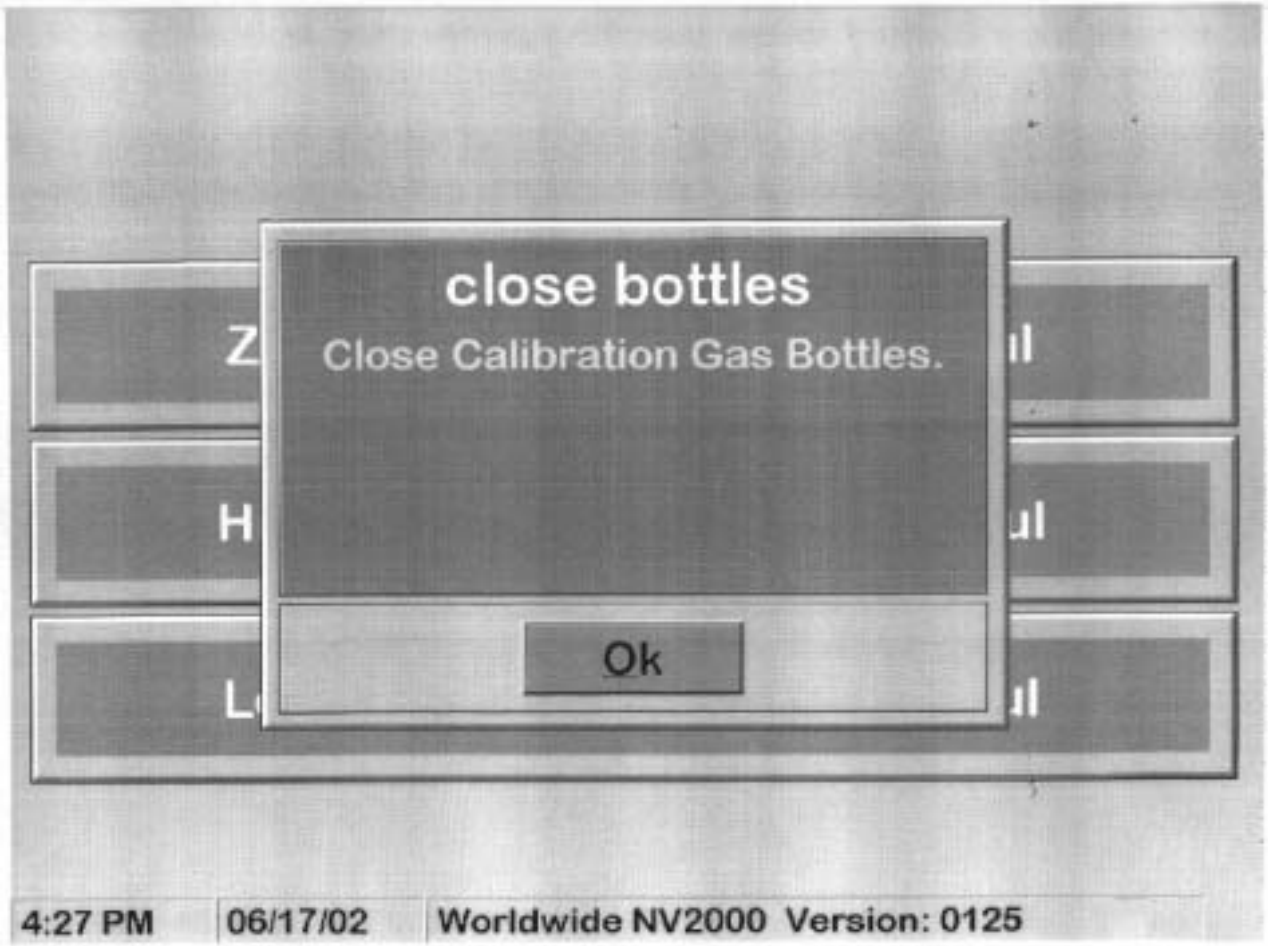


- When all values have been entered successfully click ok.

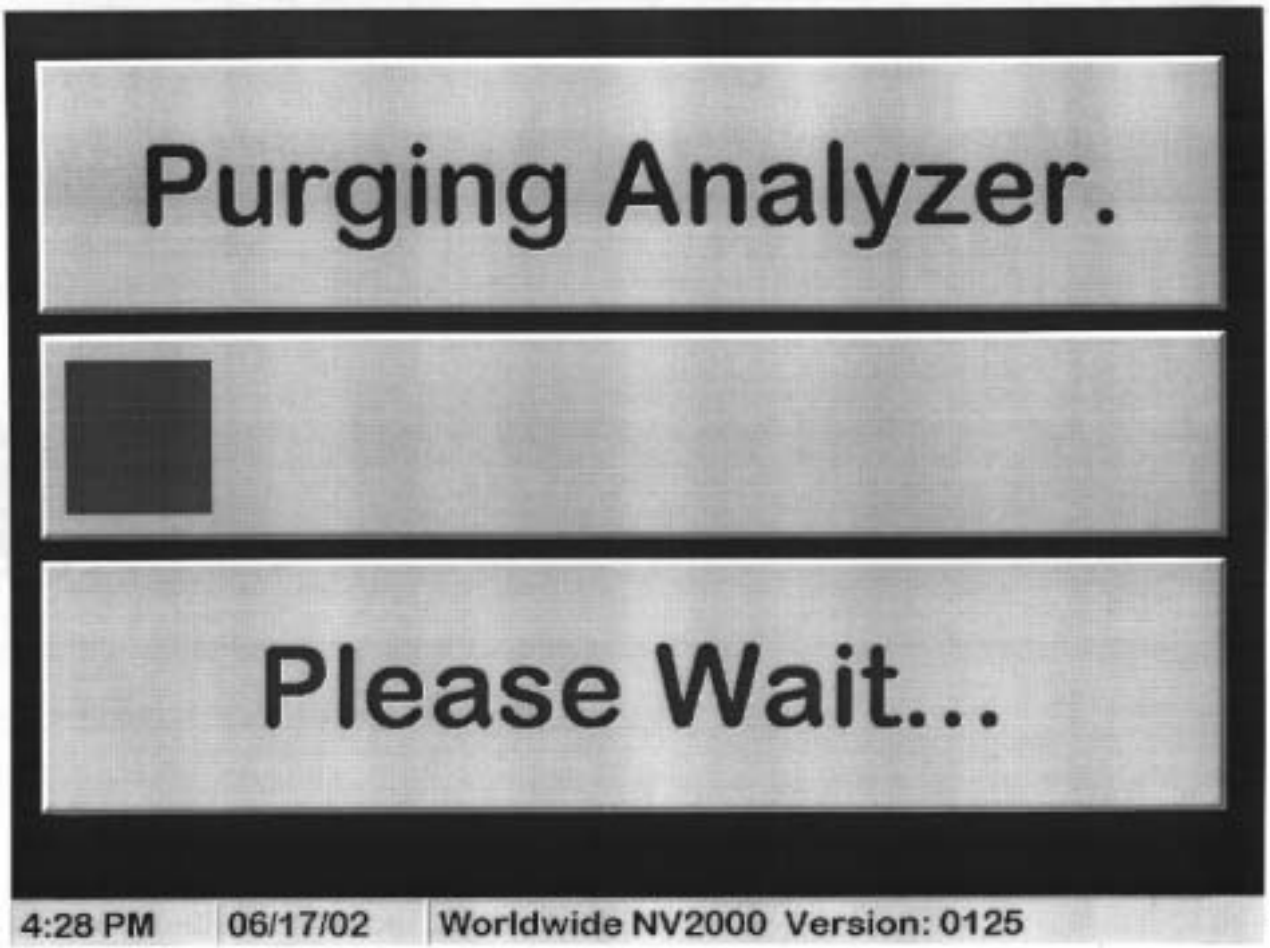


- The analyzer will now prompt you to open both calibration gas bottle valves and press F5.The analyzer will now begin the automatic portion of the gas calibration. At this point in the gas calibration the analyzer will advise you if the calibration bottles are empty.

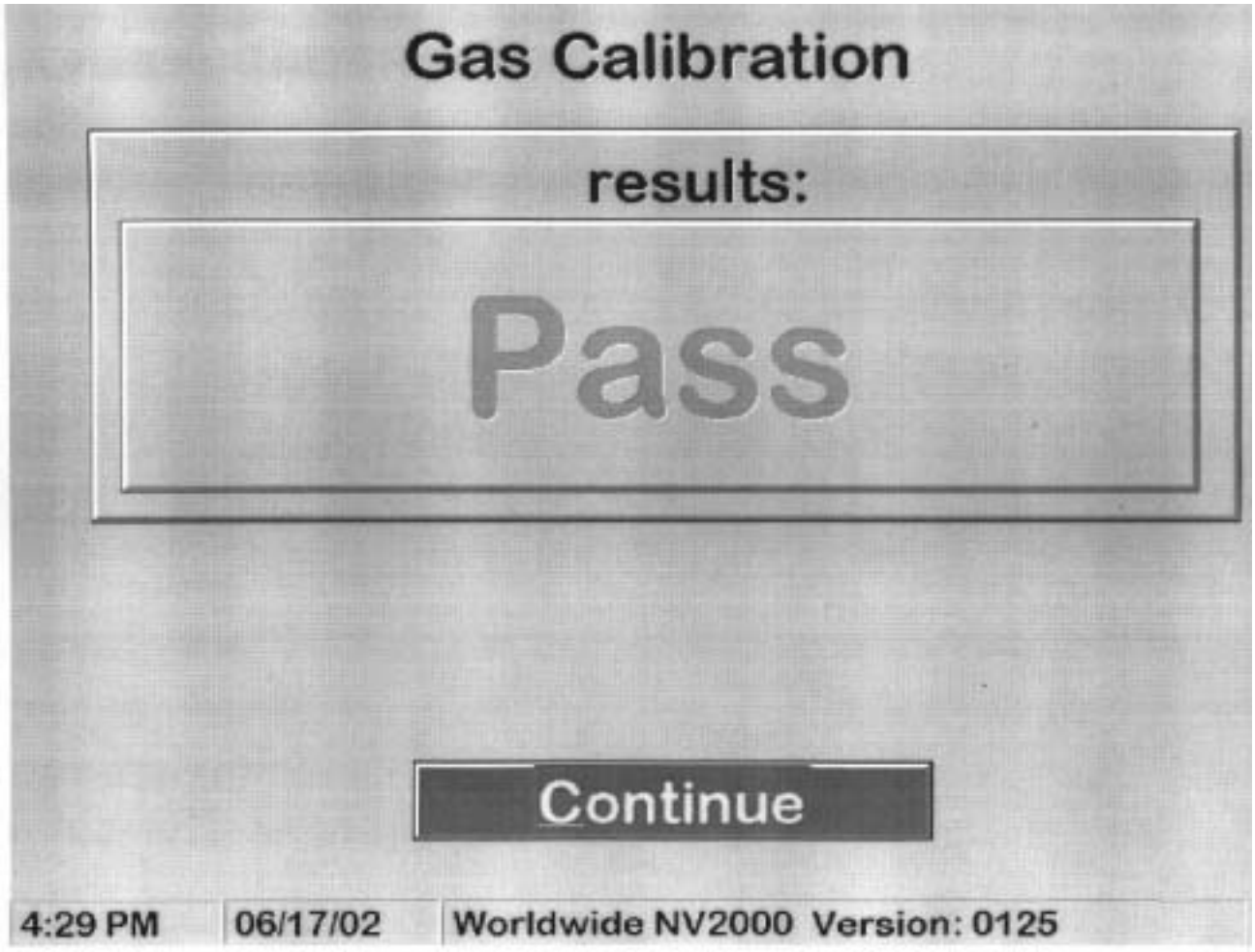
- If the no gas detected screen comes up during calibration and the bottles are still showing pressure, check the regulator valves to make sure they have not been turned off. If the valve and gas levels appear ok call for service.



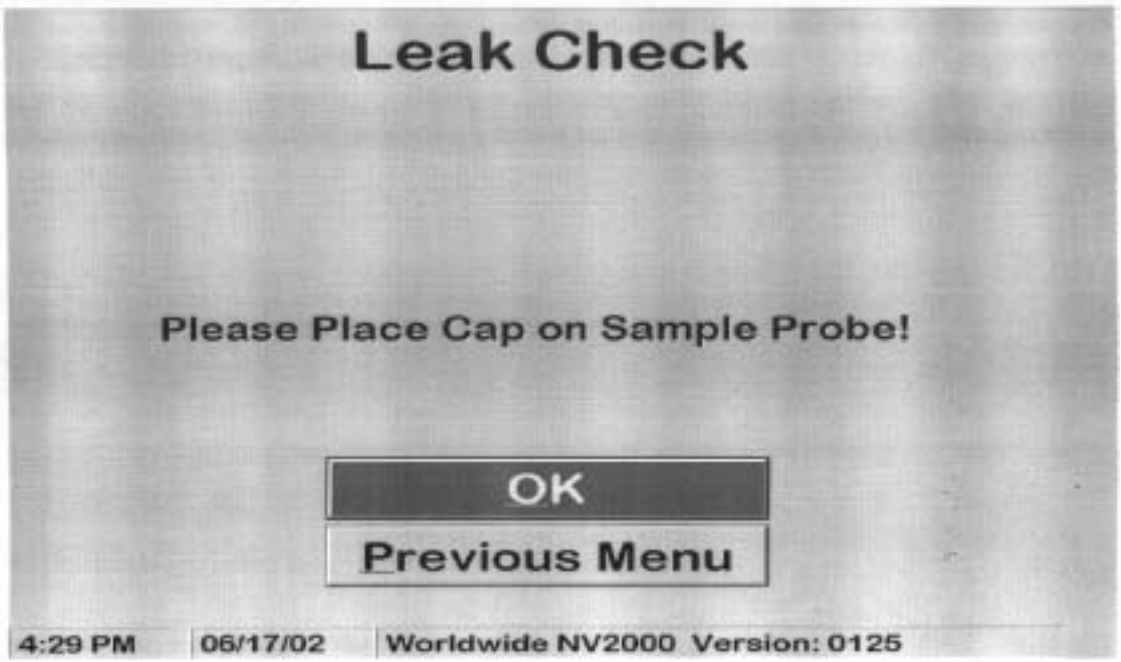
- When the calibration is complete the analyzer will prompt you to turn off the calibration gas bottles. Be sure to perform this step or readings and gas levels may be adversely affected.



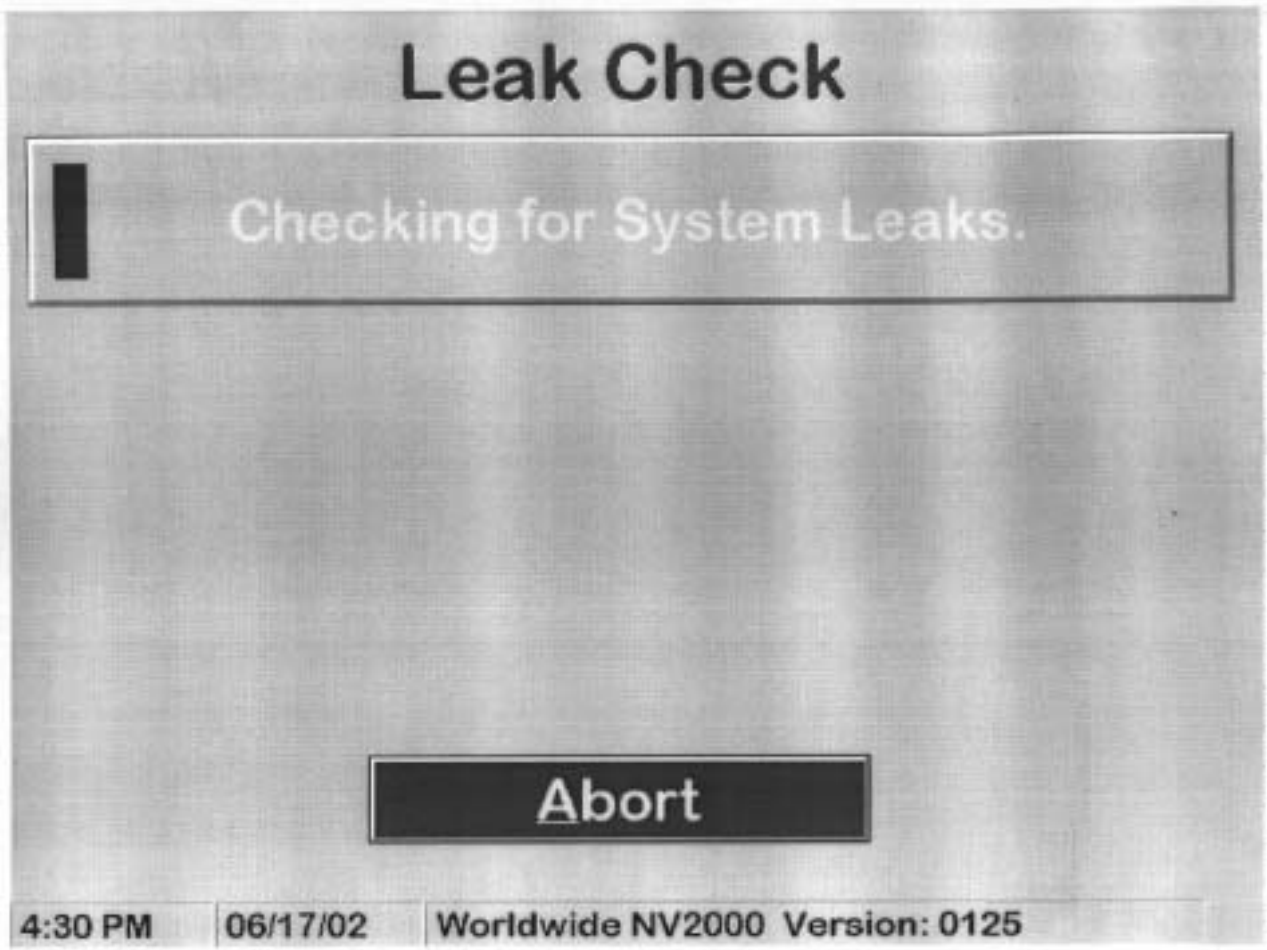
- The analyzer will now purge the bench. You will hear air venting from the test hose.



- At this point the analyzer will advise you whether the gas calibration passed or failed. If the calibration failed try one more time before calling service.

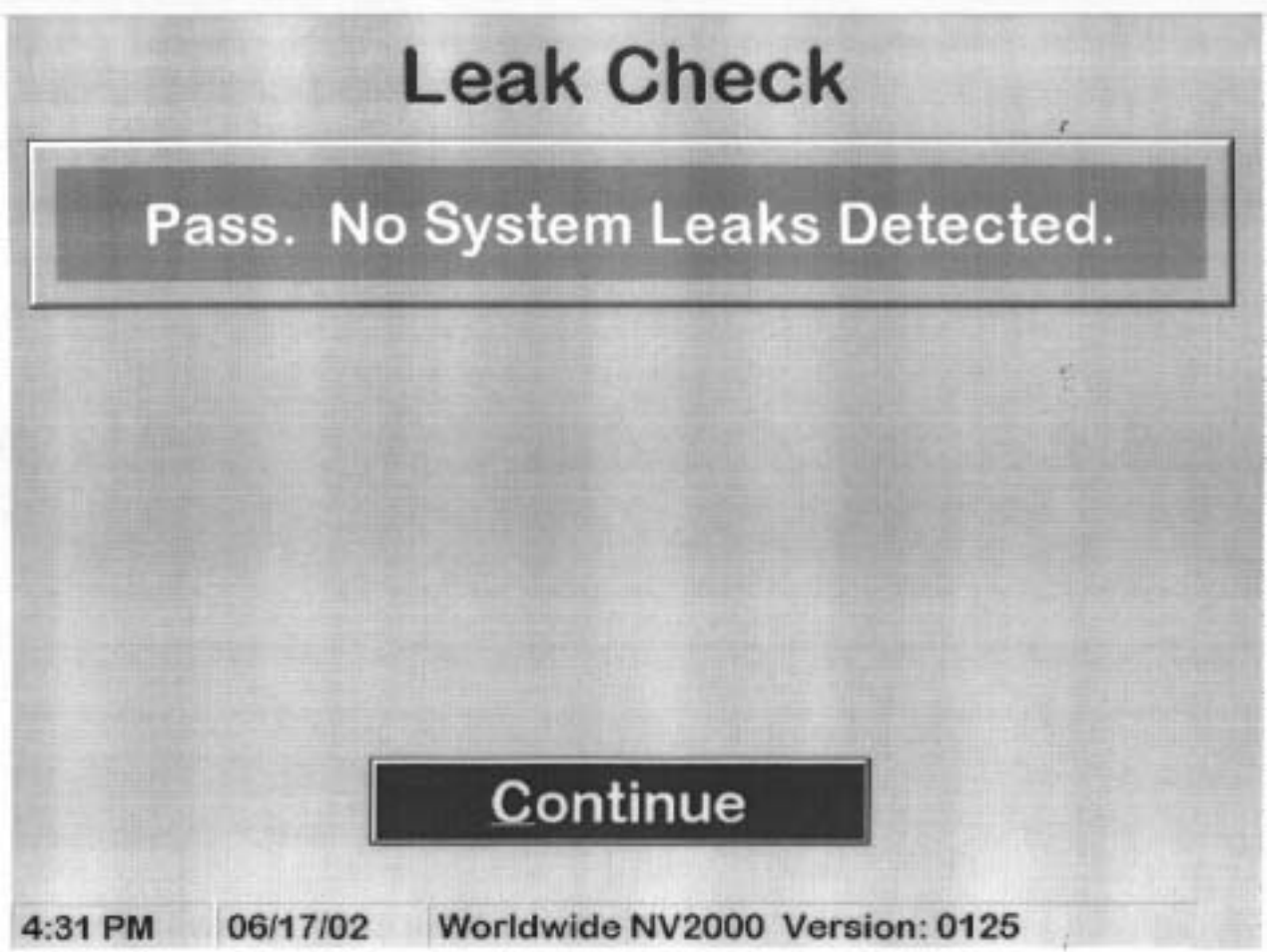


- The analyzer will now prompt you for a leak check. Place the cap on the sample probes (always do a dual probe leak check first) and click on ok. Do not abort a leak check or the analyzer will lock you out until a leak check has been done successfully.
- Also do a leak check on the single probe (this tests the tee, if dual fails but single passes)

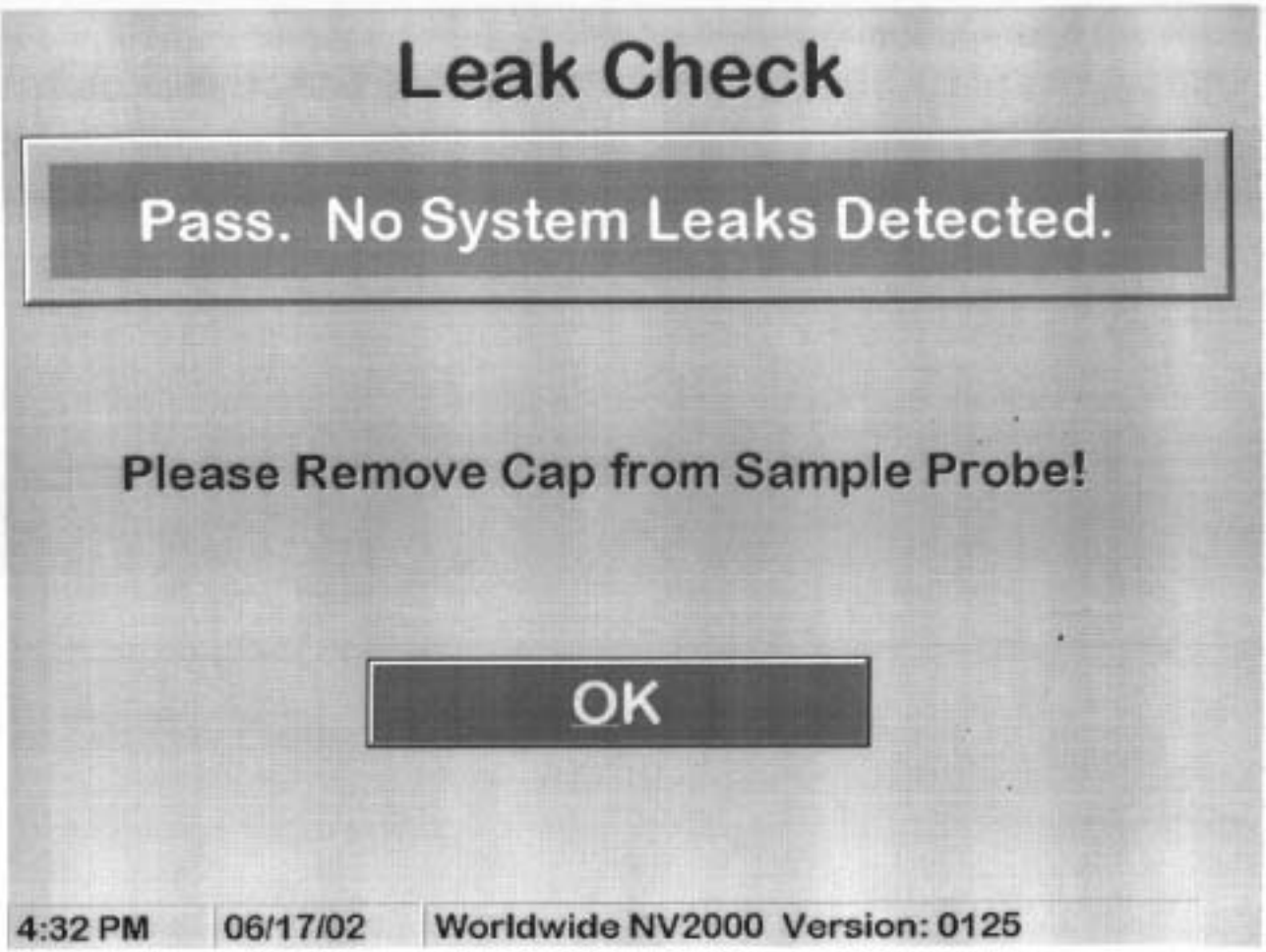


- If a leak check failure occurs check:
- Are all fittings tight?
- Are flex probes damaged?
- Filter bowl “O” rings.
- Filter bowl hose connections.
- Hose for burns or abrasions.
- Check Tee

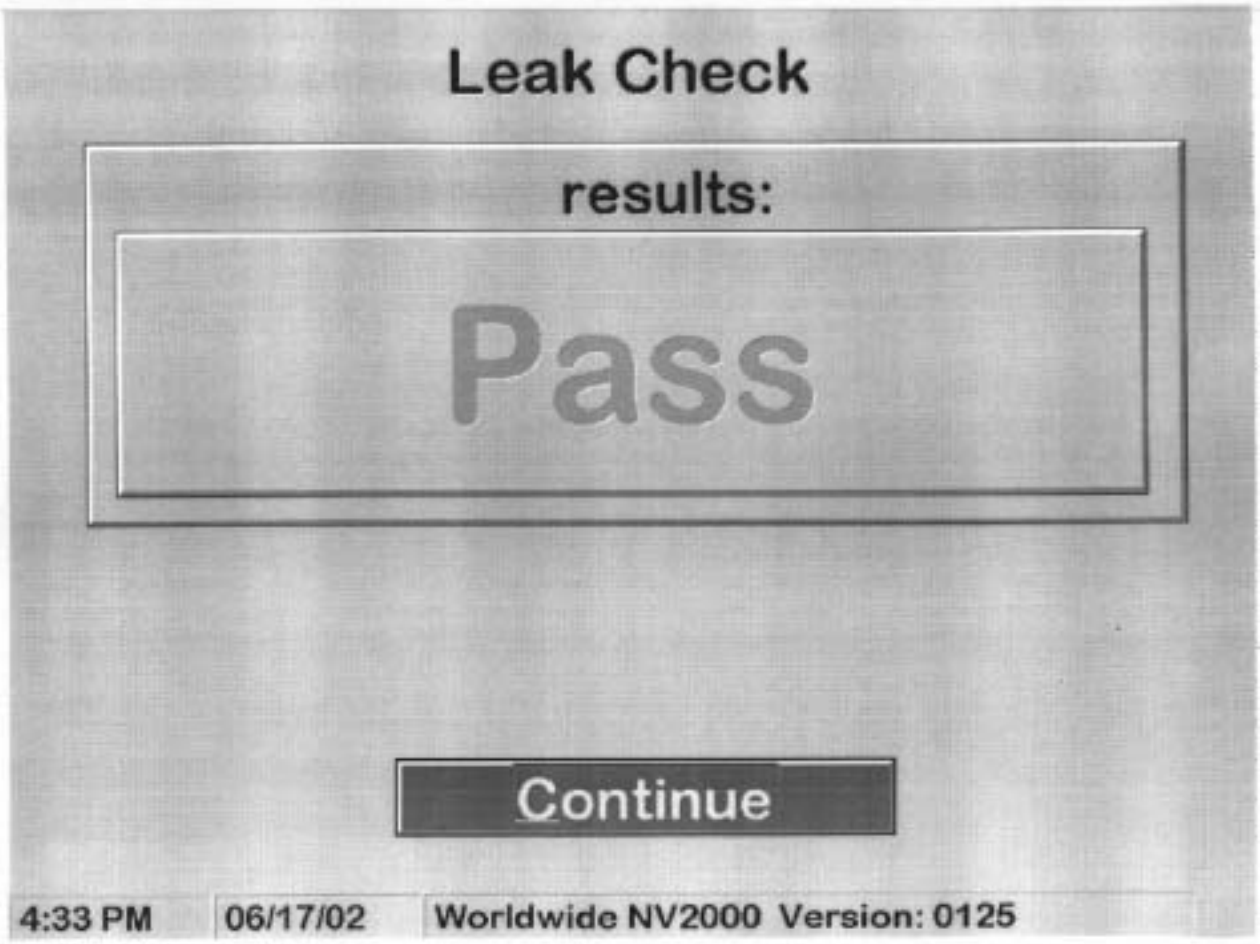
- If a problem is found and repaired click on Retry to see if the repair was successful. If leak check still fails call for service.



- If the system passes, press continue and return to main menu.

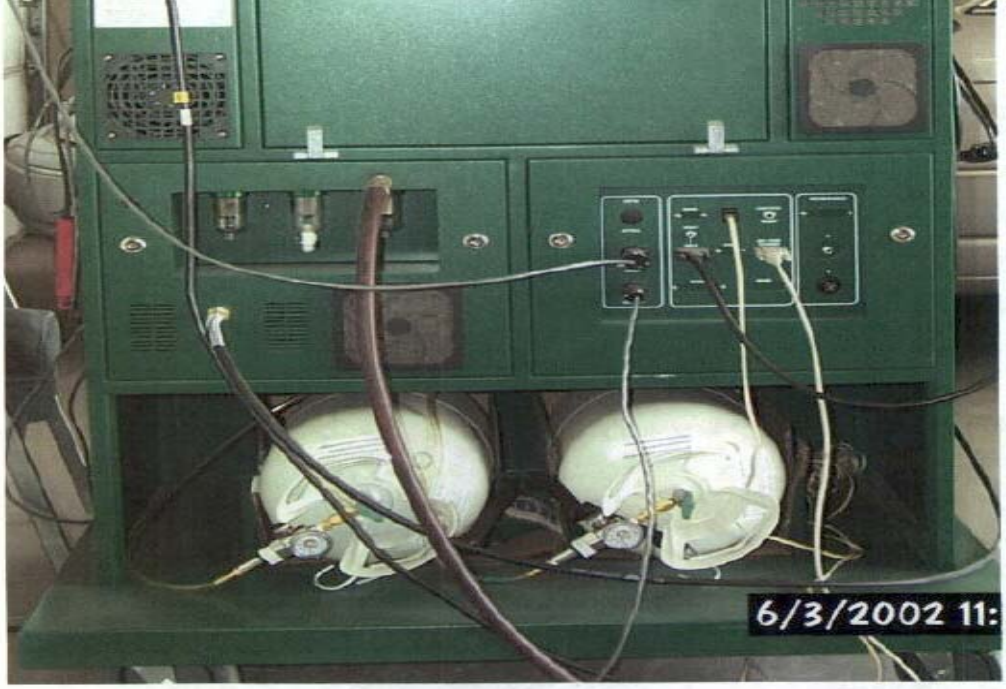


- DON’T FORGET TO REMOVE THE CAP FROM THE SAMPLE HOSE!

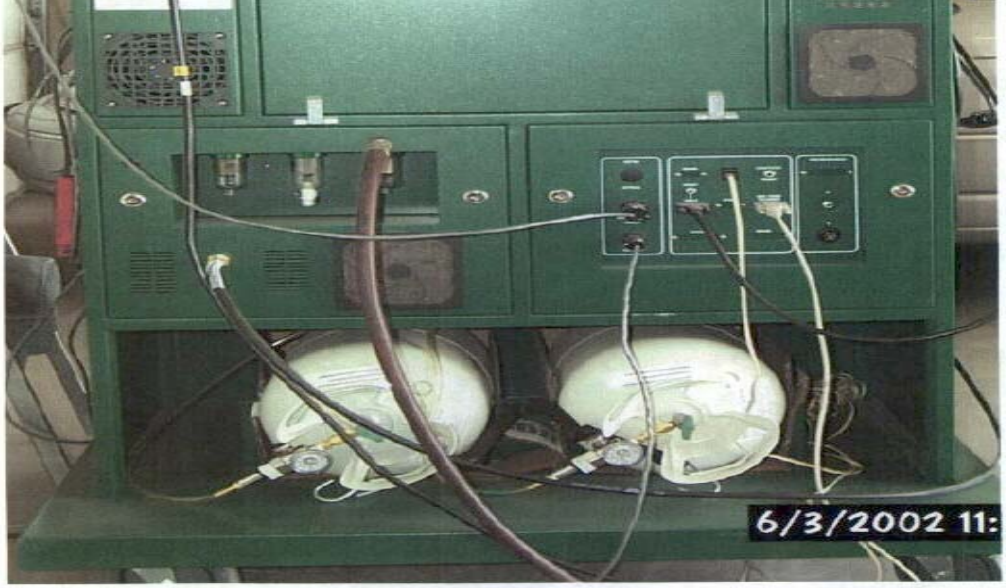


- You have now completed a 72 hour gas calibration and leak check.

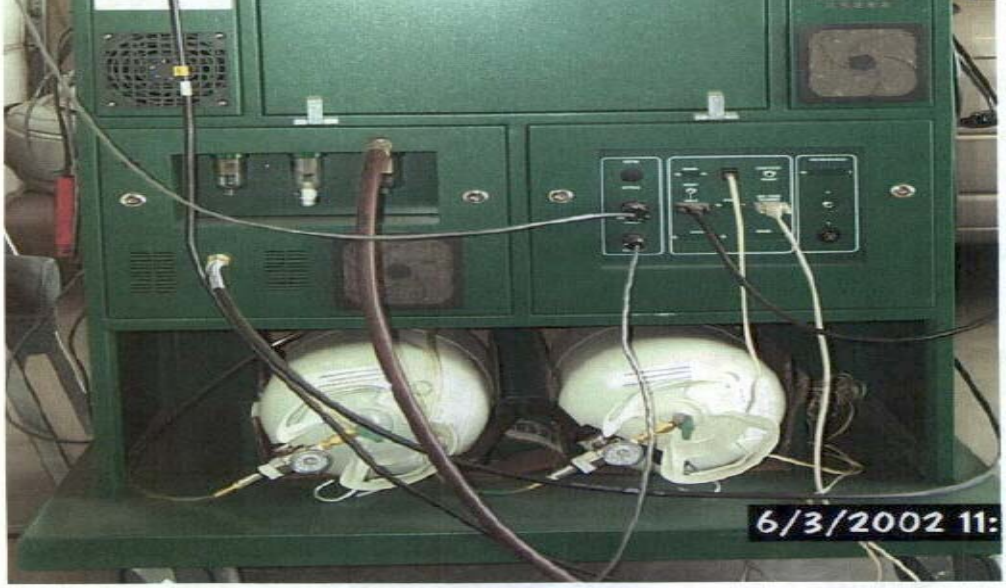
- When calibration gas levels drop to a point where a gas calibration cannot be performed the calibration gas bottles must be replaced. To replace the calibration gas bottles you must:
- Make sure the high and low calibration gas bottle valves are in the off position.
- Using a 9/16” wrench loosen and remove the regulator assembly from the gas bottle.



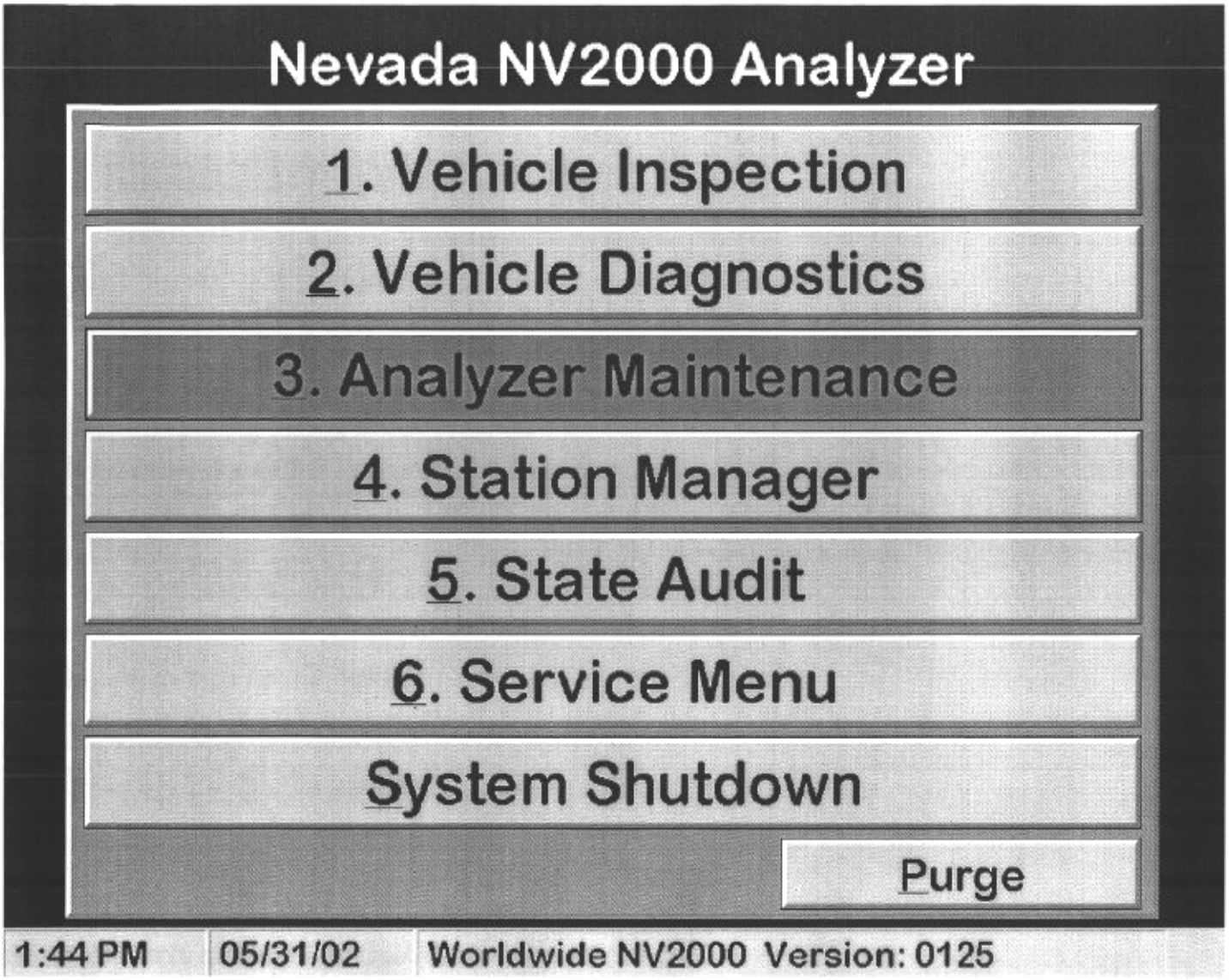
- Next remove the bottle hold down straps and remove the gas bottle.
- Now you are ready to install the new gas bottles.
- Verify that the bottles are BAR 97 certified (do not use BAR 94 cal gas) and does not contain nitric oxide.
- Install the low cal. Gas bottle on the on the right side of the analyzer as you are facing the back of the machine.



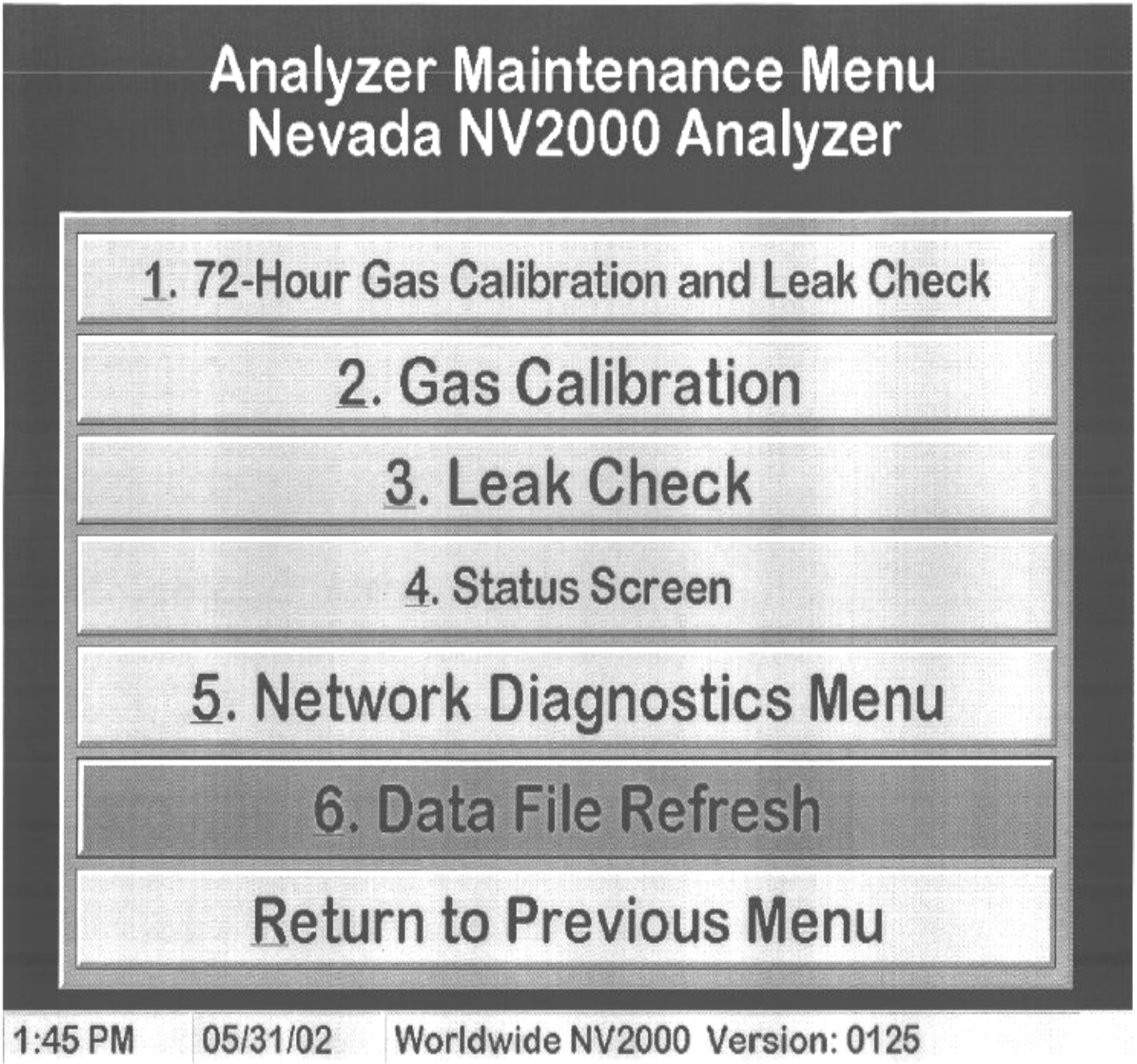
- You can identify the low pressure regulator by locating the green stripe on the low pressure hose approximately 2” from the low pressure regulator.
- Next install the high gas bottle on the left side of the machine (as you are facing the back of the analyzer)
- Make sure the regulators are tight (DO NOT OVERTIGHTEN)
- Perform a 72 hour gas calibration and leak check.



- If calibration and leak check pass return to main menu.
- If calibration or leak check fails check for:
- Correct Cal. Gas type
- Correct Gas bottle installation (GREEN STRIPE LOW SIDE HOSE)
- Try troubleshooting procedure under leak check for a leak failure.



- **For Data File Refresh Click on number 3 Analyzer Maintenance**



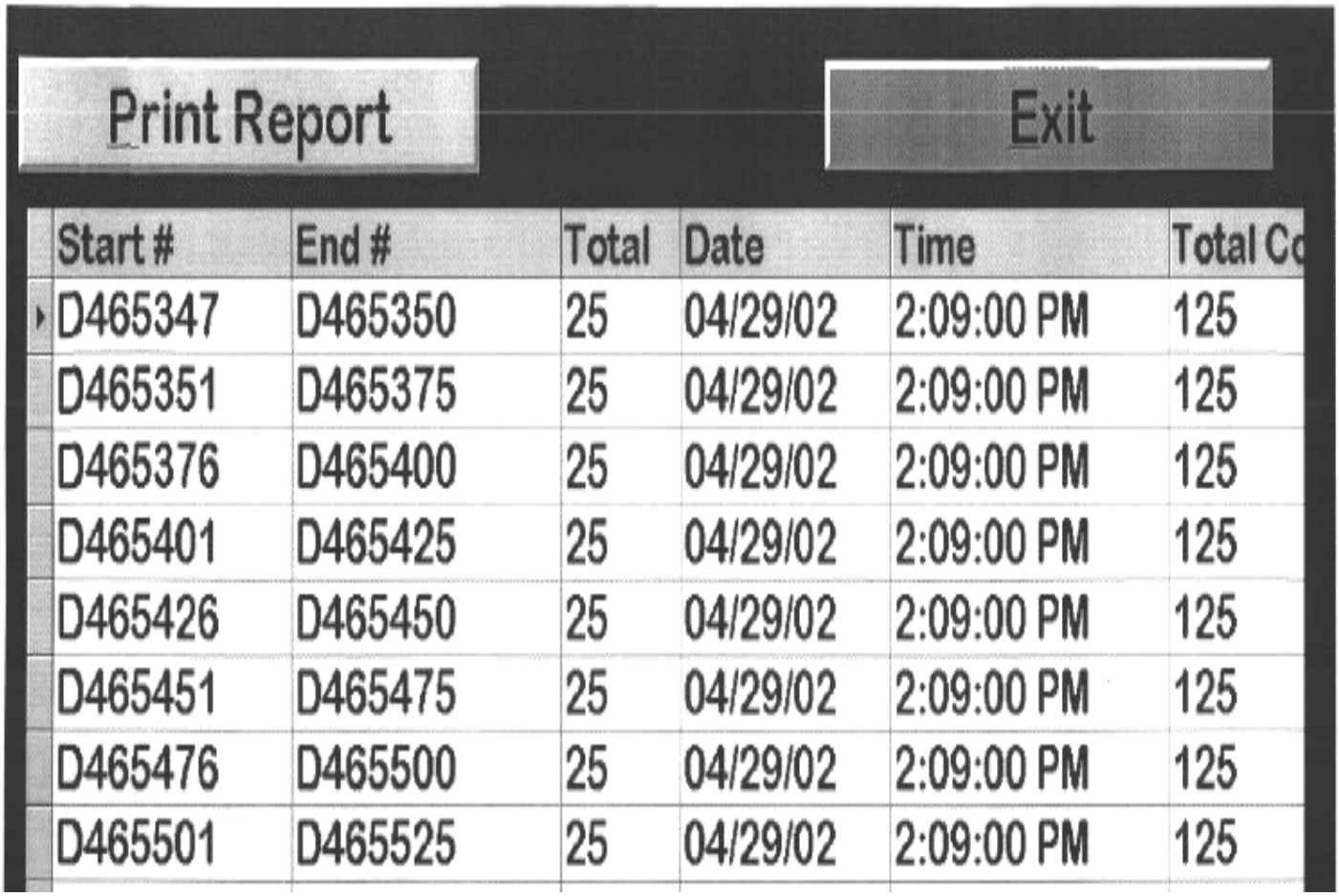
Click on the number 6 Data File Refresh bar.

- A DATA FILE REFRESH will update your analyzers stored information by communicating with the State computer (VID) and downloading the latest information. This is the best way to bring in new inspector and station licensing information.

DATA FILE REFRESH

- It is also a good way to update vehicle inspection report information. (It sometimes requires two or more Data File Refreshes to get all the information downloaded.)

- Click “EXIT” to continue



- **The VIR records stored in the analyzer will be displayed.**
- **Click Exit To Continue**

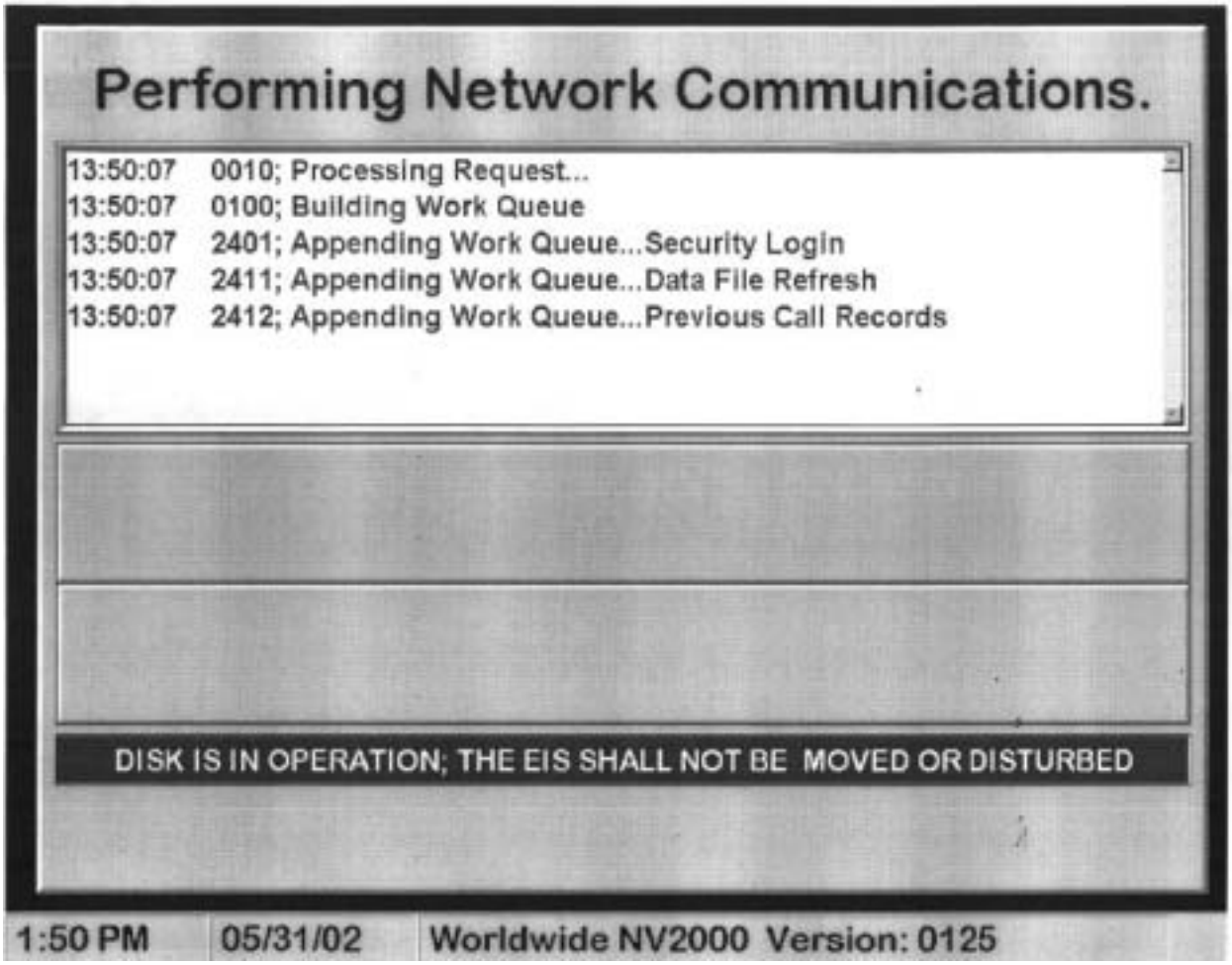
Inspector Information Table

05/31/2002
Station Number: WEA000
DMV - CED RENO

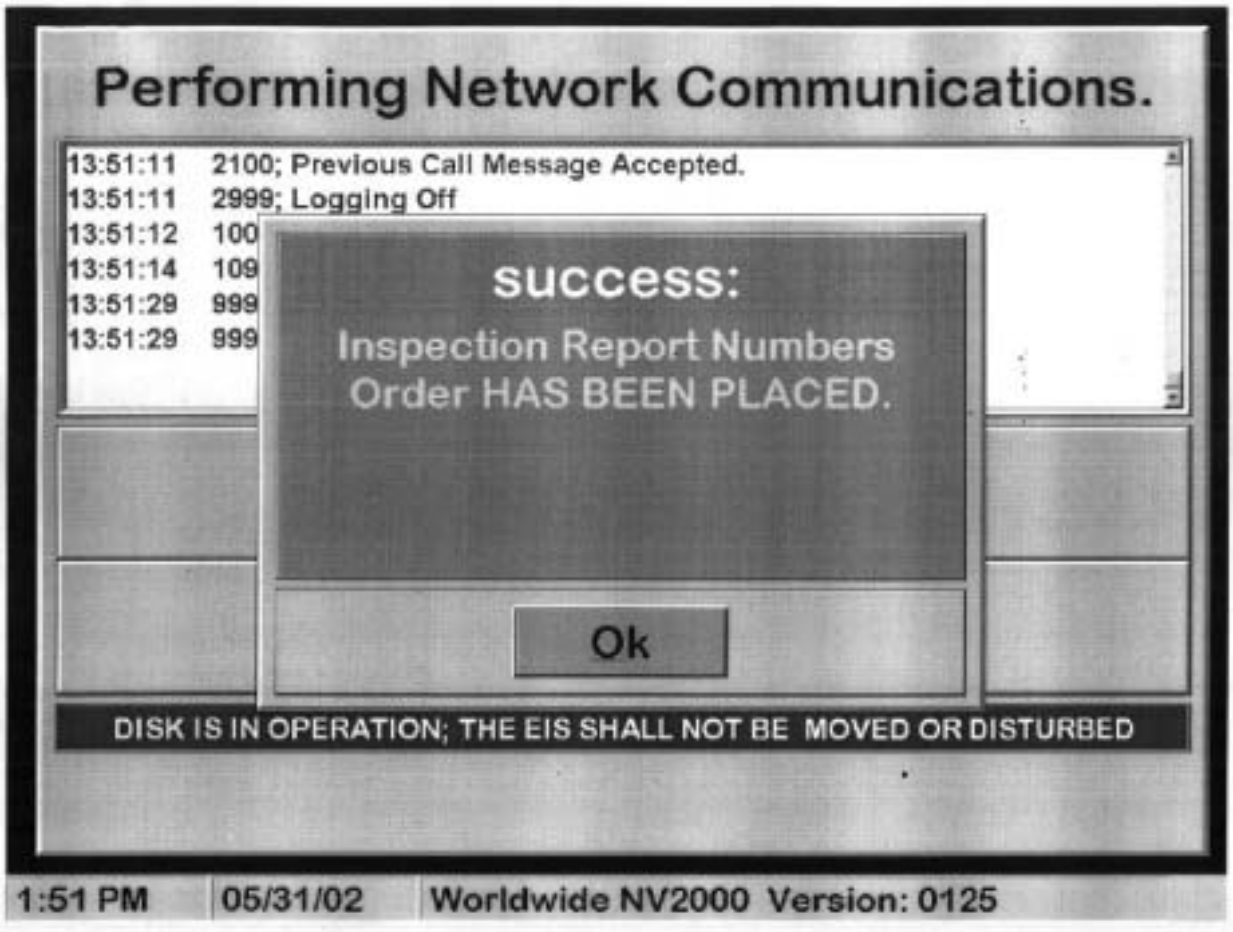
Analyzer Number: W700

Name	License	Expiration Date	Lockout	Audit
DONALD F. HANSEN	I000510	Feb 01, 2003	N	N
MIKE SQUARTSOFF	I000877	Apr 01, 2003	N	N
BENNETT A. TEMPEL	I002303	Feb 01, 2003	N	N
GLEN E. SMITH	I002324	Feb 01, 2003	N	N
JOHN M. LEE	I002617	Apr 01, 2003	N	N
KEVIN HUNT	I002729	Apr 01, 2003	N	N
THOMAS T. LANSFORD	I0045503	Feb 01, 2003	N	N
DIANNE L. STORTZ-LINTZ	I0045761	Nov 28, 2003	N	N
AL NICHOLSON	I0045776	Dec 28, 2002	N	N
ARTHUR A. "THE FONZ"	I0045790	Feb 01, 2003	N	N
HAL GREENE	I0045802	Mar 01, 2003	N	N
GRACE P. KELLY	I0045813	Mar 06, 2004	N	N
GERALD D. HOWRY	I0045907	May 18, 2004	N	N
LLOYD G. NELSON	WEI470	Feb 01, 2003	N	N

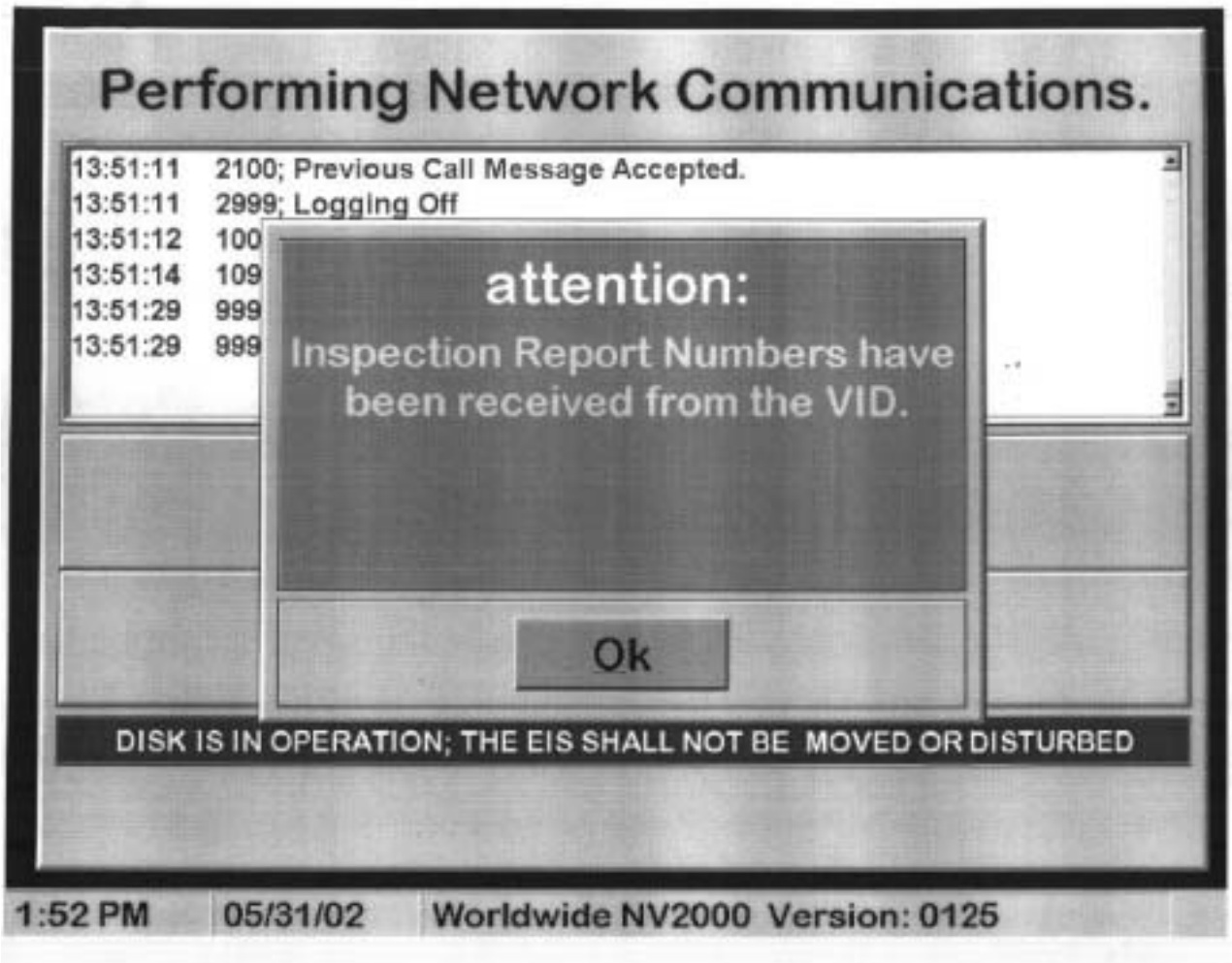
- **An Inspector List will now be displayed showing the inspectors that are stored in the analyzer**



- **The analyzer will now call the VID**



- If you are on automatic VIR purchase, your order will now be placed with the VID. Next the analyzer will advise that the new VIR's have been received and it will display the number sequence so you can verify your purchase.



- This screen advises that your updated VIR numbers have been received and stored in your analyzer.

Sticker Usage Report

Date of Report: 05/31/02 1:53:31 PM
Station License: WEA000
Station Name: DMV - CED RENO
Analyzer Number: W700

Start No	Last No	Total No	Purchase Date	Purchase Time		Total Cost
D465347	D465350	25	04/29/02	2:09:00 PM	125	5.00
D465351	D465375	25	04/29/02	2:09:00 PM	125	5.00
D465376	D465400	25	04/29/02	2:09:00 PM	125	5.00
D465401	D465425	25	04/29/02	2:09:00 PM	125	5.00
D465426	D465450	25	04/29/02	2:09:00 PM	125	5.00
D465451	D465475	25	04/29/02	2:09:00 PM	125	5.00
D465476	D465500	25	04/29/02	2:09:00 PM	125	5.00
D465501	D465525	25	04/29/02	2:09:00 PM	125	5.00
D465526	D465550	25	04/29/02	2:09:00 PM	125	5.00
D465551	D465575	25	04/29/02	2:09:00 PM	125	5.00

- This screen lists VIR books in sequence. Date, time of purchase and cost information is provided.

- This screen shows the latest inspector information has been sent down from the VID.

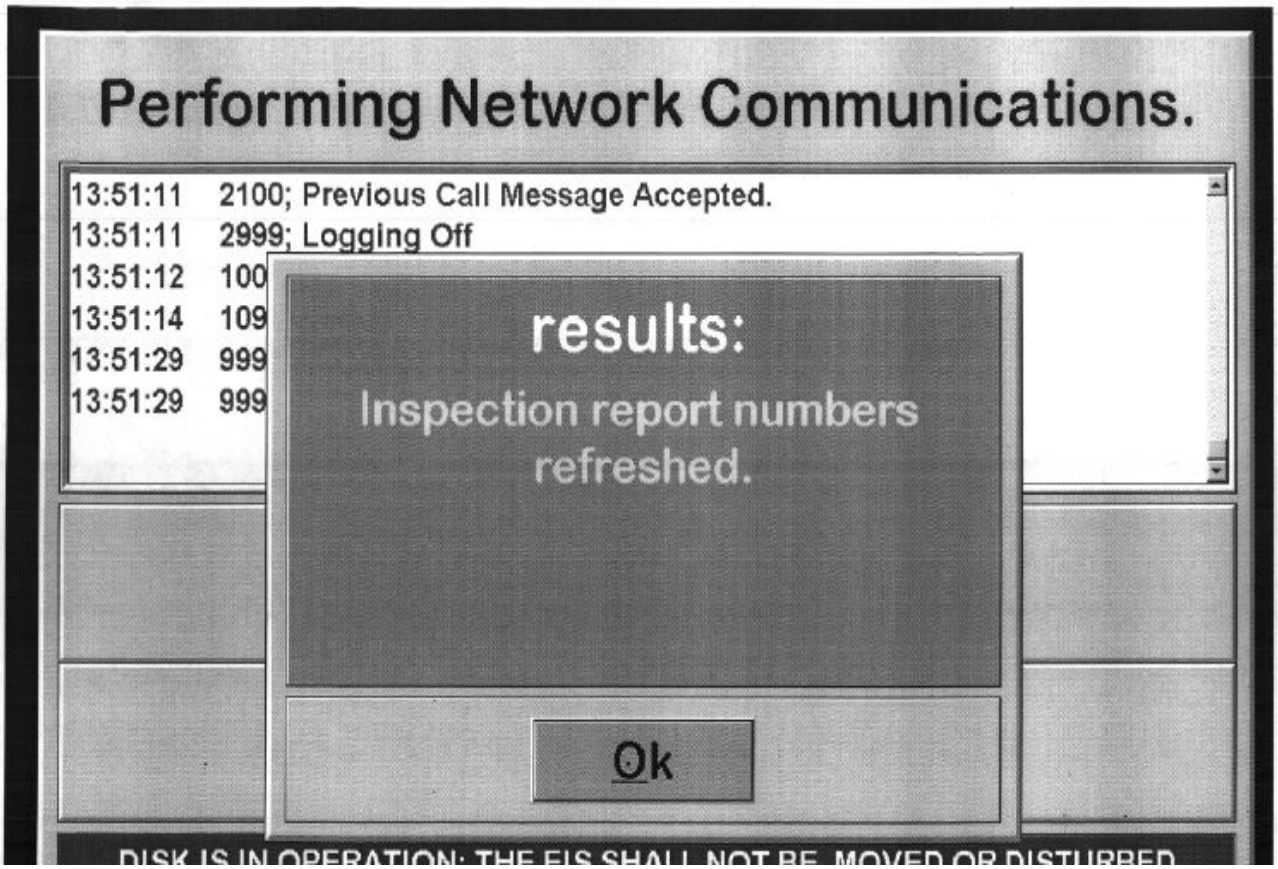
Inspector Information Table

05/31/2002
Station Number: WEA000
DMV - CED RENO

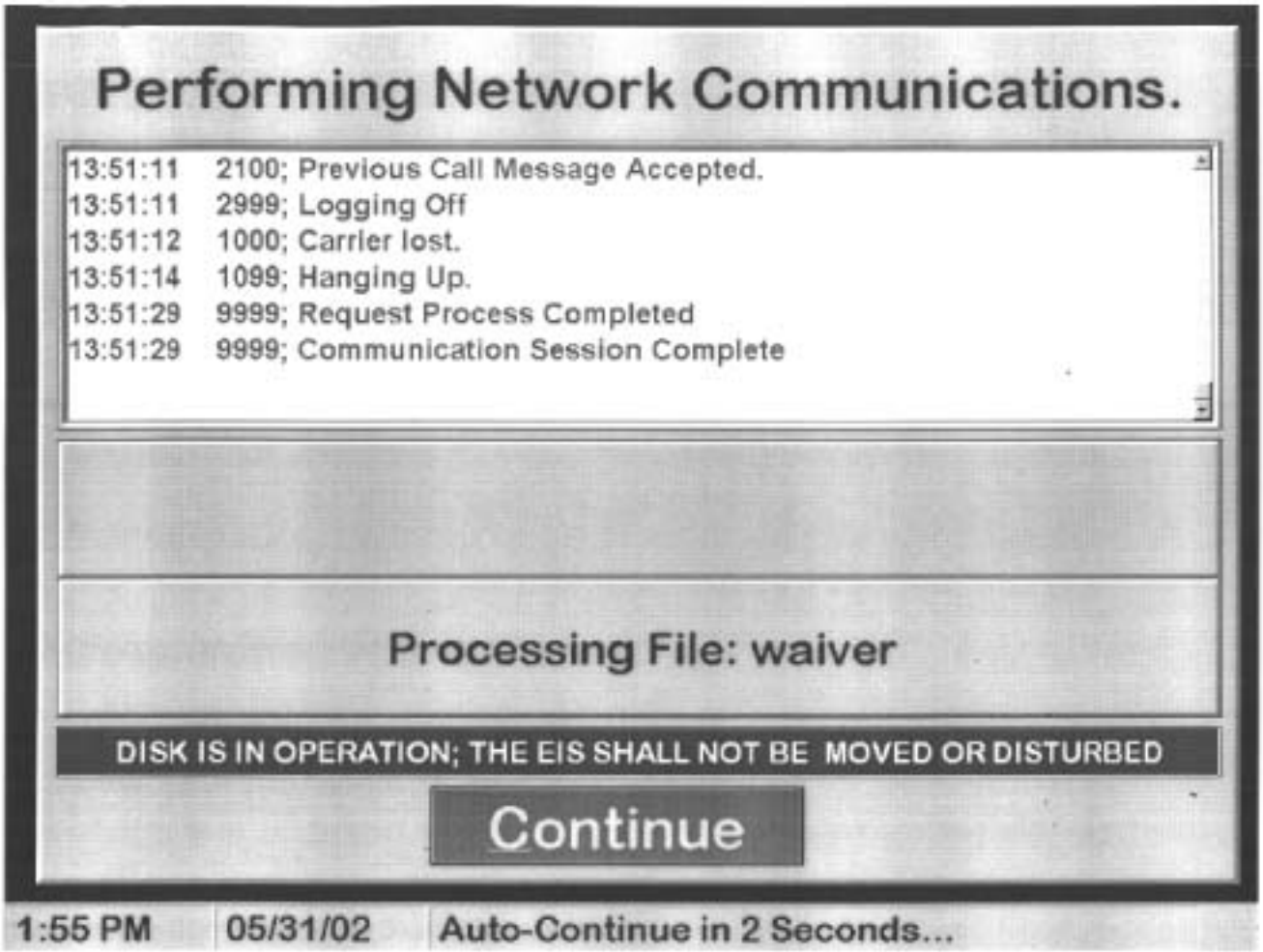
Analyzer Number: W700

Name	License	Expiration Date	Lockout	Audit
DONALD F. HANSEN	I000510	Feb 01, 2003	N	N
MIKE SQUARTSOFF	I000877	Apr 01, 2003	N	N
BENNETT A. TEMPEL	I002303	Feb 01, 2003	N	N
GLEN E. SMITH	I002324	Feb 01, 2003	N	N
JOHN M. LEE	I002617	Apr 01, 2003	N	N
KEVIN HUNT	I002729	Apr 01, 2003	N	N
THOMAS T. LANSFORD	I0045503	Feb 01, 2003	N	N
DIANNE L. STORTZ-LINTZ	I0045761	Nov 28, 2003	N	N
AL NICHOLSON	I0045776	Dec 28, 2002	N	N
ARTHUR A. "THE FONZ"	I0045790	Feb 01, 2003	N	N
HAL GREENE	I0045802	Mar 01, 2003	N	N
GRACE P. KELLY	I0045813	Mar 06, 2004	N	N
GERALD D. HOWRY	I0045907	May 18, 2004	N	N
LLOYD G. NELSON	WEI470	Feb 01, 2003	N	N

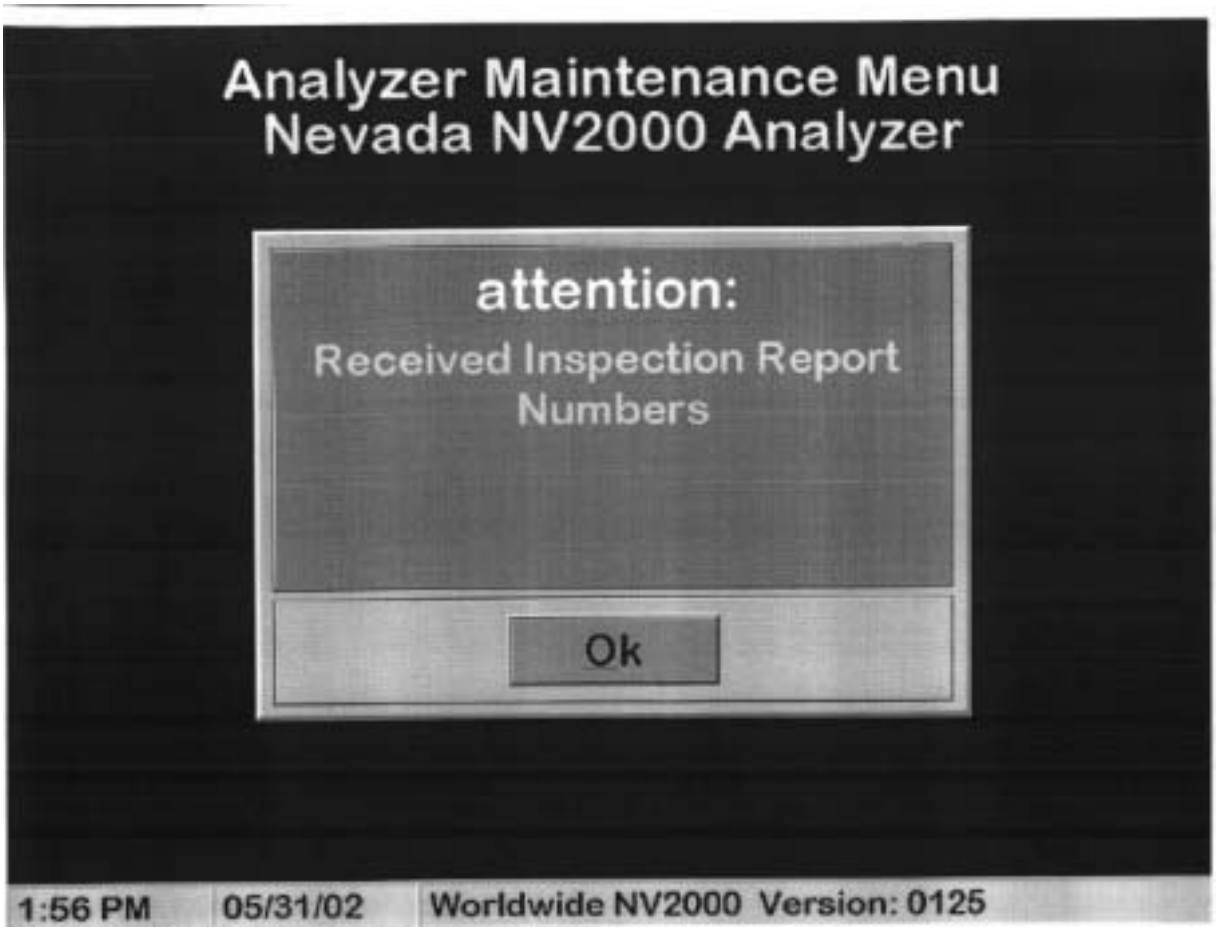
- New inspectors will be displayed on this screen along with the inspector license expiration date information and lock out status.



- This indicates all information on inspection reports has been updated.



- Communication is complete.



- This screen indicates the machine has received VIR numbers

Sticker Usage Report

Date of Report: 05/31/02 1:56:58 PM
Station License: WEA000
Station Name: DMV - CED RENO
Analyzer Number: W700

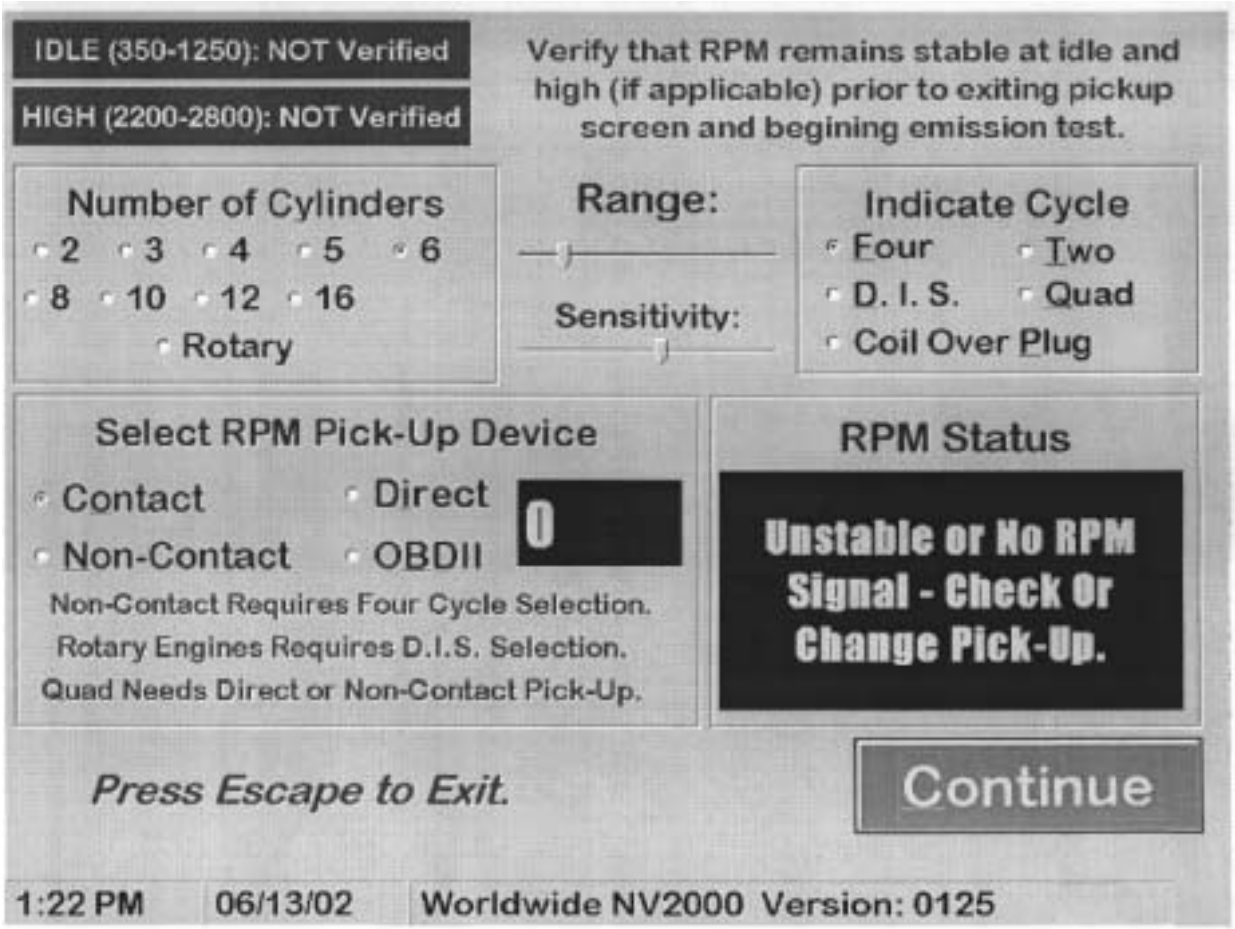
Start No	Last No	Total No	Purchase Date	Purchase Time	Total Cost $	Cost/Number $
D465347	D465350	25	04/29/02	2:09:00 PM	125	5.00
D465351	D465375	25	04/29/02	2:09:00 PM	125	5.00
D465376	D465400	25	04/29/02	2:09:00 PM	125	5.00
D465401	D465425	25	04/29/02	2:09:00 PM	125	5.00
D465426	D465450	25	04/29/02	2:09:00 PM	125	5.00
D465451	D465475	25	04/29/02	2:09:00 PM	125	5.00
D465476	D465500	25	04/29/02	2:09:00 PM	125	5.00
D465501	D465525	25	04/29/02	2:09:00 PM	125	5.00
D465526	D465550	25	04/29/02	2:09:00 PM	125	5.00
D465551	D465575	25	04/29/02	2:09:00 PM	125	5.00

- This page shows the VIR usage for this machine

Vehicle Inspection

- Follow all the screen prompts to conduct a vehicle Inspection
- Do not short cut any steps
- Read the screen carefully
- Remember safety rules

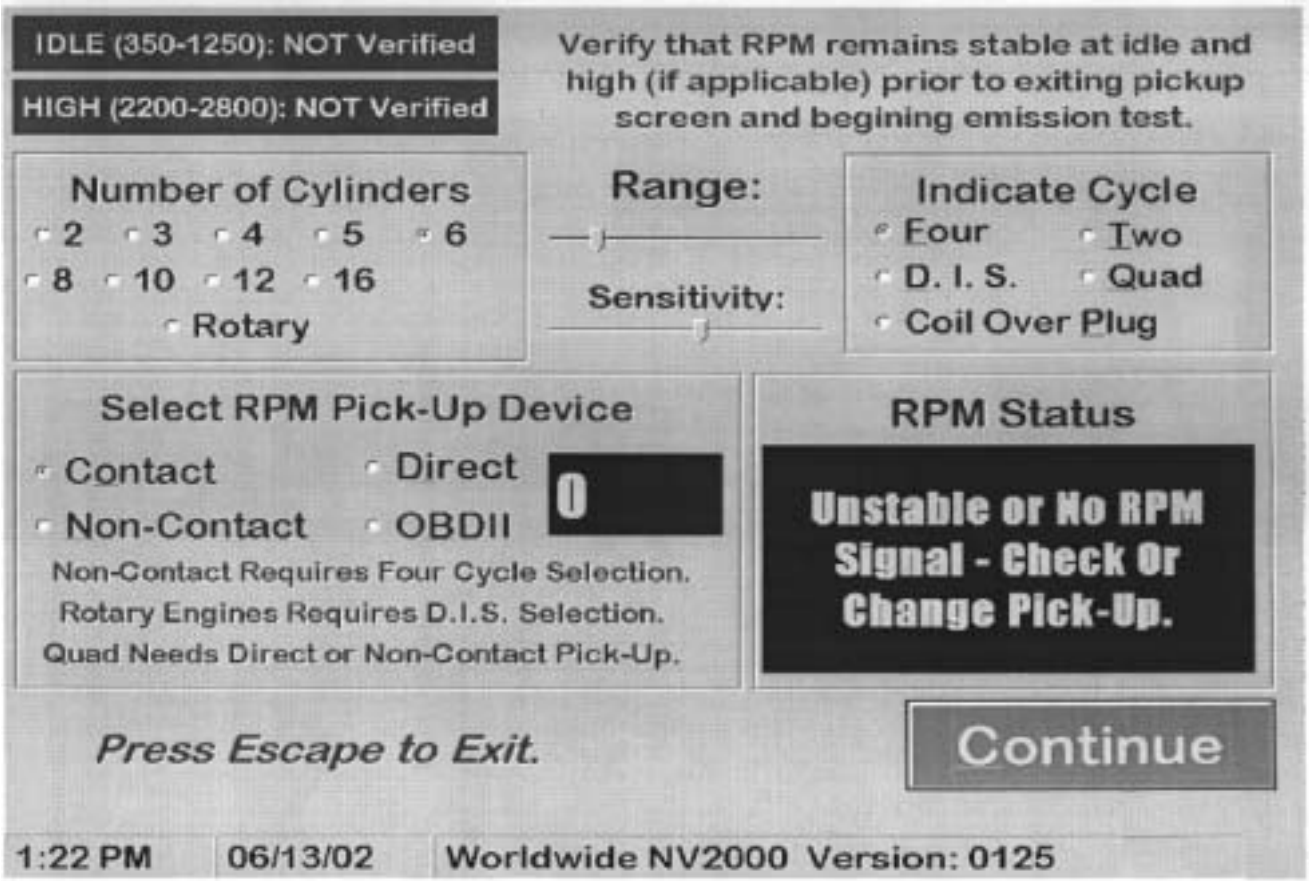
- **First**
- To Verify Tach Signal
- Start at the **Main Menu**
- Chose Vehicle Inspection (No.) 1
- Click on No. 4 (as shown above) RPM Pickup Screen



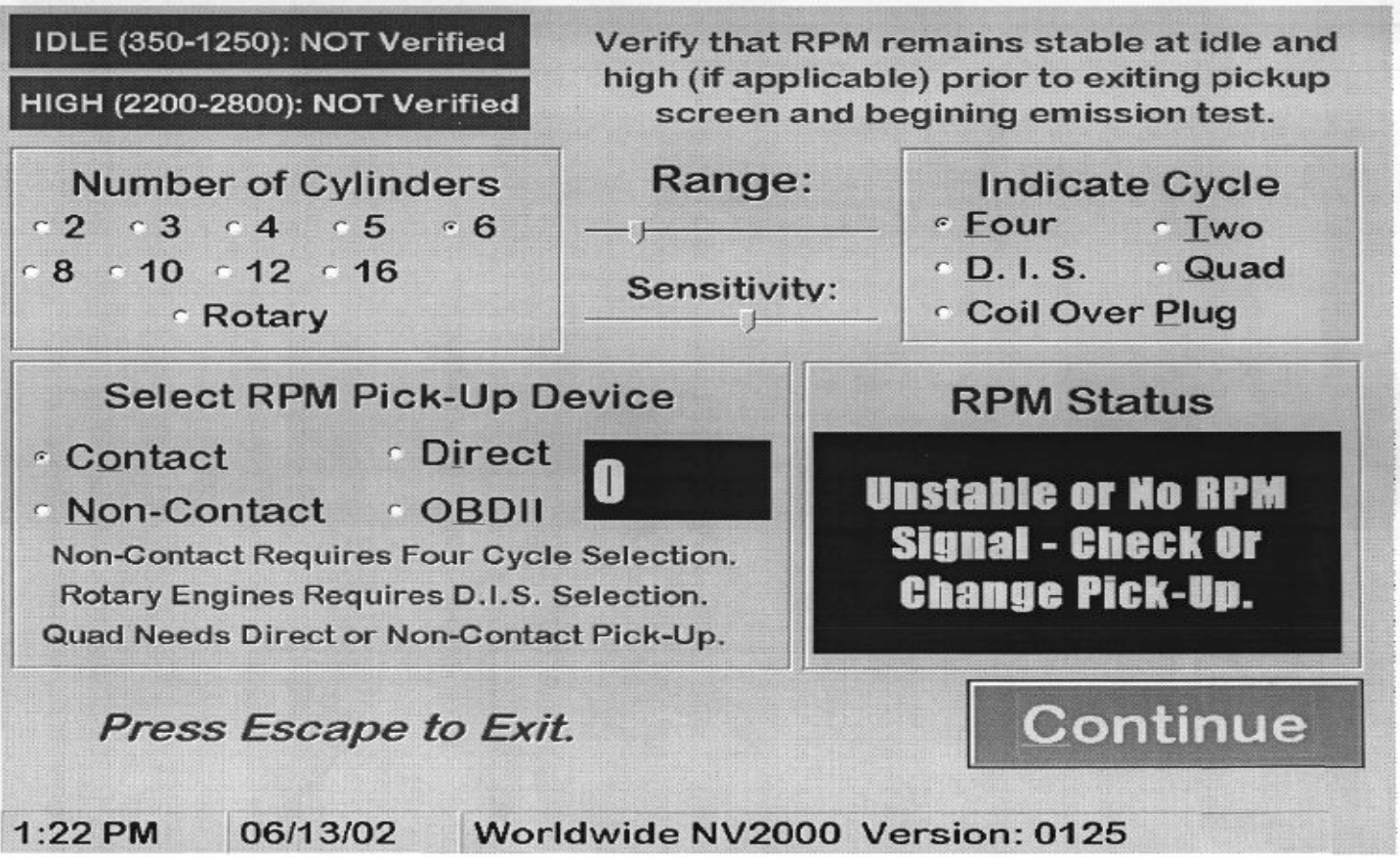
- Enter No. of Cylinders
- Enter Type of Cycle
- Enter RPM Pick-Up Device
  - Contact
  - Direct
  - Non-Contact
  - OBD II

- Inspector **Must** Verify RPM at;
  - Idle
  - 2500 RPM
  - The Idle bars will go from:
    - NOT Verified to Verified
  - Unstable or No RPM Signal will change to
    - RPM is Stable

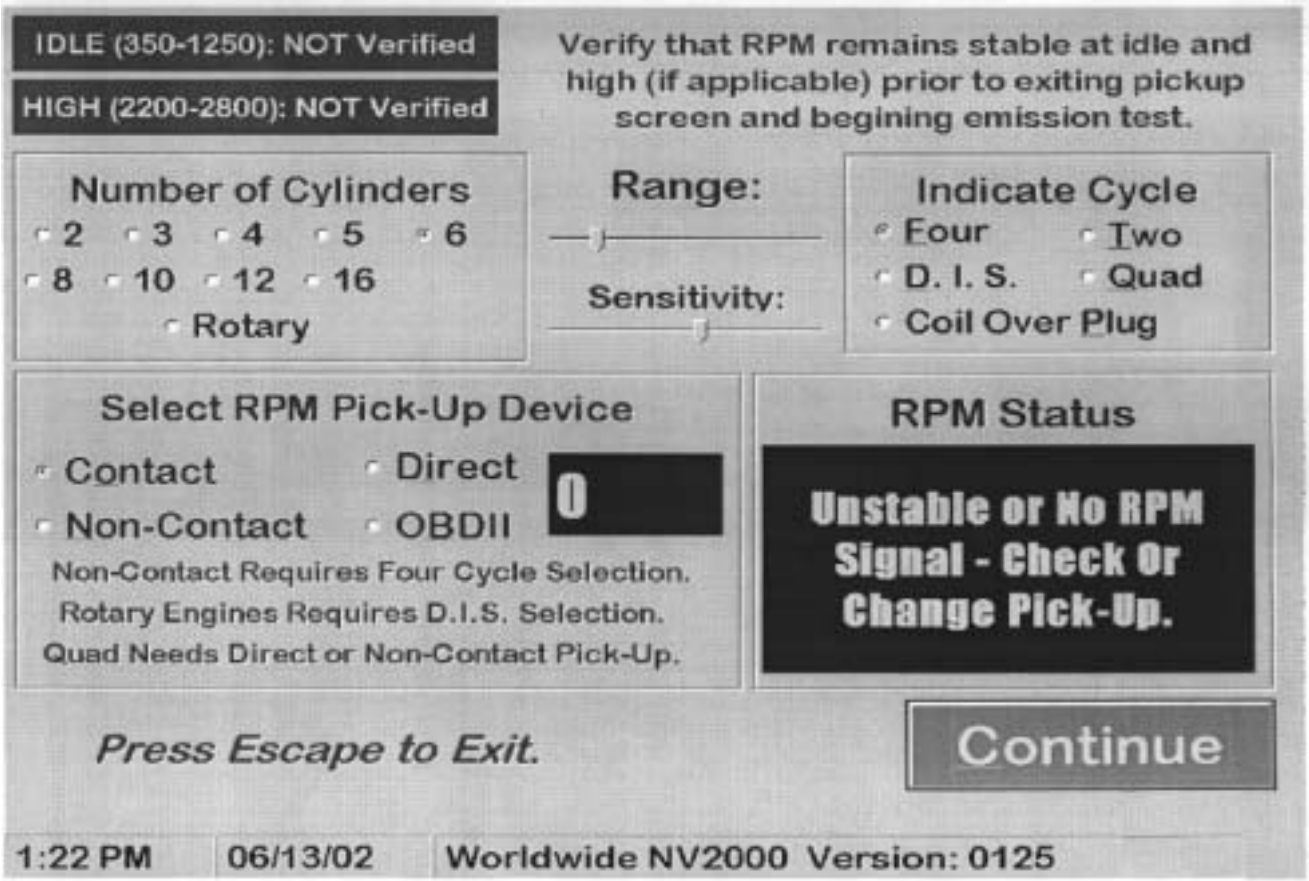
- The **BEST** tach connection
  - OBD II connector Plug
    - 1996 & Newer
    - Light Duty Vehicles



- Second Choice for Tach Signal
  - Red Contact Lead
- Red Contact Lead has **SEVERAL** options available
  - Look for a Tach Loop
  - Spark Plug Wire
  - Fuel Injector Harness
  - Igniter Harness
  - Coil Harness

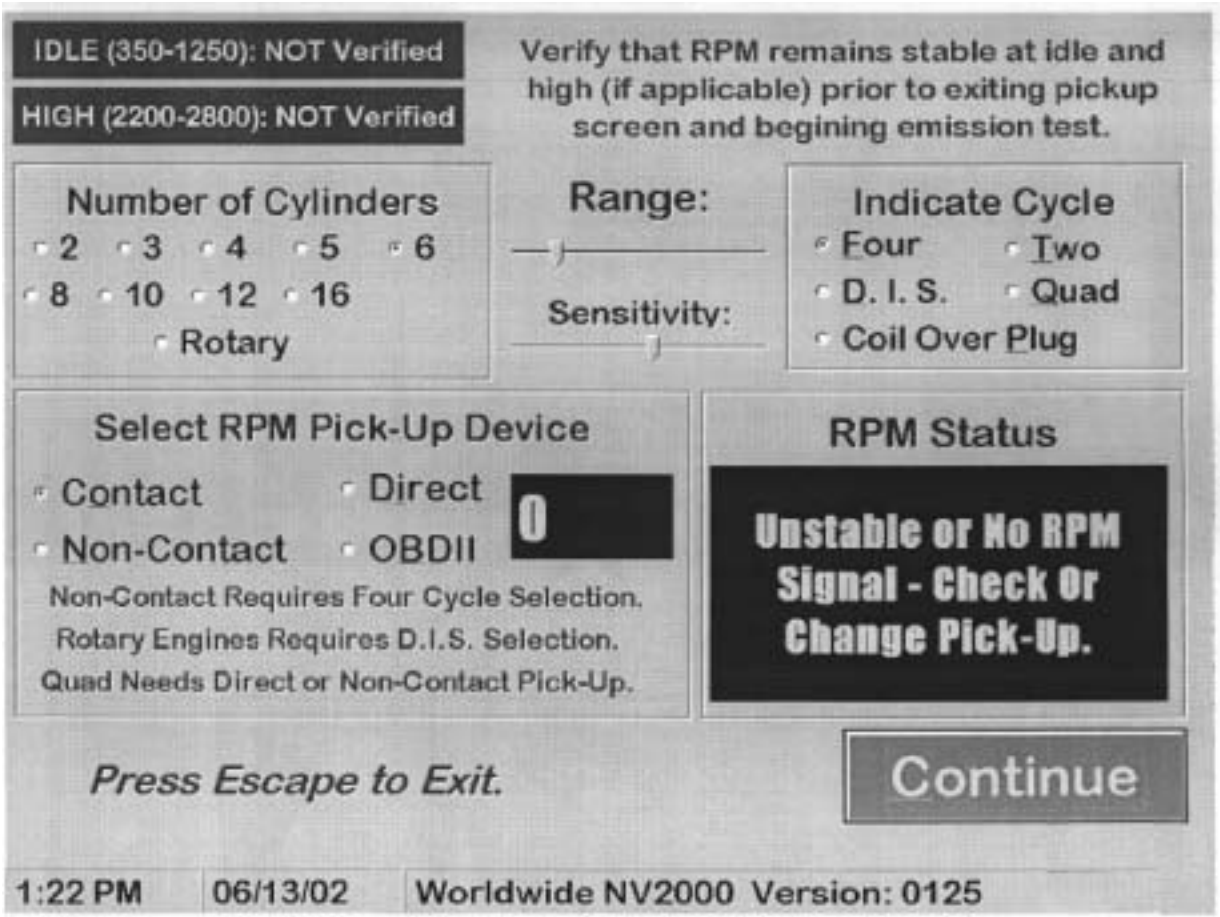


- **Change Indicate Cycle (choices)**
  - **Four, Two, DIS, Coil Over Plug or**
  - **Quad (GM QUAD FOUR)**
- **Results wanted**
  - **Strong Tach Signal at:**
  - **Idle**
  - **2500 RPM**
  - **Note you cad adjust Range and sensitivity**

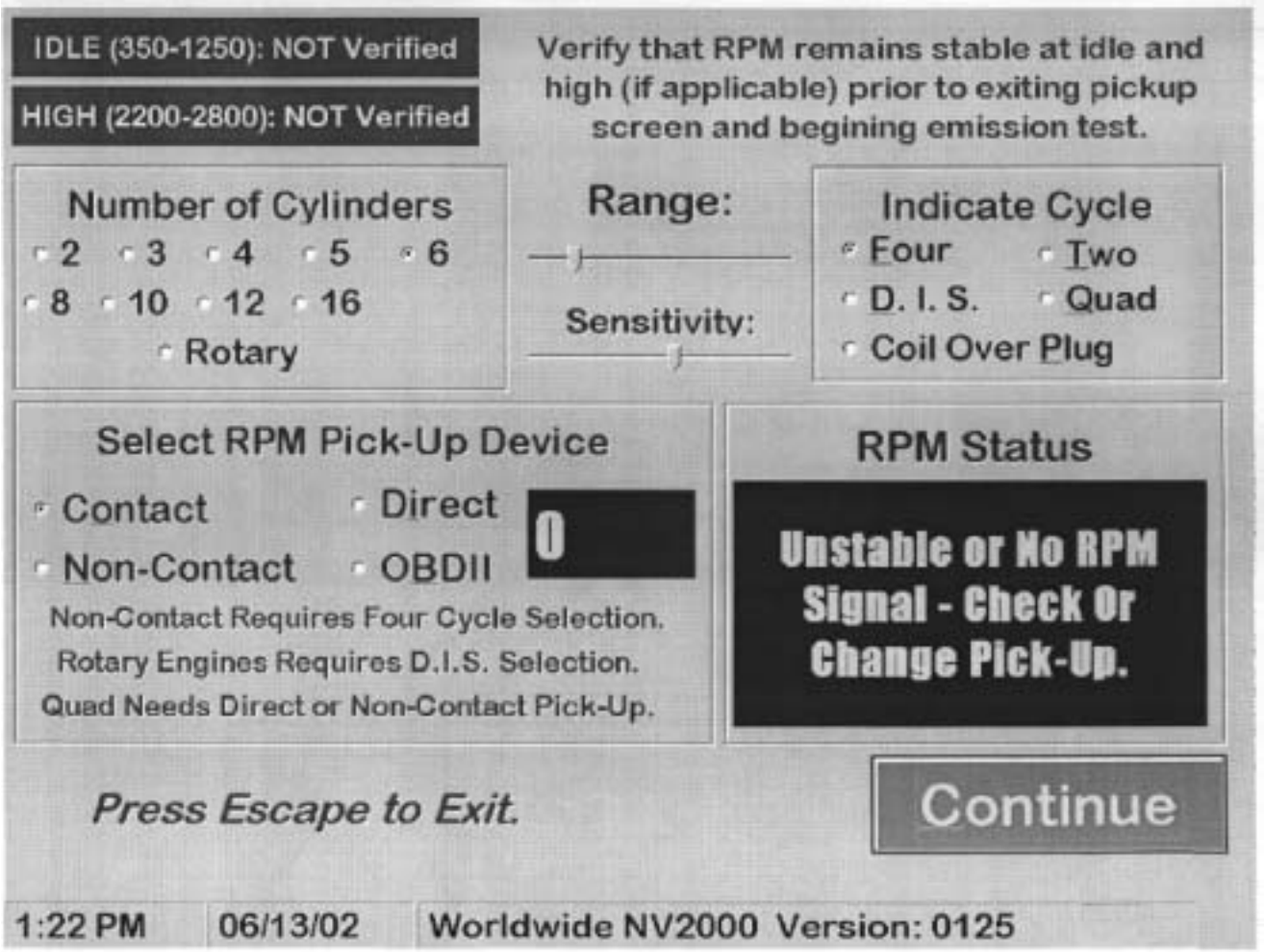


- Tight Areas a **<u>PROBLEM</u>?**
  - World Wide supplies a wire
  - Loop wire around harness that you are trying to get a tach signal from
  - Once wire is looped around the hard to reach harness
  - Hook the Red Contact Lead Clamp to looped wire
  - Check for Strong Signal at
    - Idle
    - 2500 RPM

- The **FINAL METHOD** of obtaining a Tach Signal
  - Non-Contact Pickup
  - 2 Types
    - One with an antenna
    - One with a Sensitivity Switch (op)



  - Verify a **STRONG** Tach Signal at:
    - Idle
    - 2500 RPM
- An intermittent loss of the Tach Signal can cause:
  - A Test Failure



- Location of Non-Contact Probe
  - Position Non-Contact Probe near:
    - Ignition Source
    - Fuel Injection Source
  - Watch for a Strong Rapid Green Flash from the Non-Contact Probe

- Positioning of the Non-Contact Probe is **CRITICAL!!**
  - It **MUST NOT** vibrate out of Position during a test.
    - Loss of Tach Signal
    - Potential **SAFETY** Problem
  - Again Check for a strong Tach Signal
    - Idle
    - 2500 RPM

- The optional Non-Contact probe has:
  - Three Position Sensitivity Switch
  - On Screen Range Sensitivity adjustment
  - Directional
    - Turning the Non-Contact probe 90 to 180 degrees
    - Can make a difference in a strong or weak signal

- **BOTTOM LINE**
  - Try your options (think imaginatively)
  - Before sending a vehicle to the Emission Lab
  - Average Time for the Emission Lab Technicians
    - to get a strong Tach Signal
    - 5 minutes
- **TRY** before you send your customer **AWAY**

The following is the analyzer demonstration examination. If you do not have a certificate of competence provided by Worldwide you will have to demonstrate proficiency on the machine.

MACHINE FAMILIARITY

- Access printer
- Check printer settings
- Add paper
- Power up analyzer

NAVIGATING ANALYZER SCREENS

- Access Main Menu
- Explain Vehicle Inspection selection
- Explain Vehicle Diagnostics selection
- Explain Analyzer Maintenance selection
- Explain Station Manager selection
- Explain State Audit selection
- Explain Service Menu selection
- Explain System Shutdown selection

ACCESS VEHICLE INSPECTION MENU

- Reprint VIR
- Access Training Mode
- Access RPM Pick-up Screen

ACCESS VEHICLE DIAGNOSTICS MENU

- Access and explain 4 Gas selection
- Access and explain OBD II Diagnostics selection
- Access and explain RPM selection
- Access and explain Zero Analyzer selection

ACCESS MAINTENANCE MENU

- Access and explain Gas calibration
- Access and explain Leak Check
- Access and explain Status screen
- Access and explain Network Diagnostics

STATION MANAGER

- Access Station Managers Menu and explain
- Perform Maintenance on filters, screens & traps

Twenty correct are needed to pass

EMISSION INSPECTION PRACTICAL EXAMINATION TRAINING CHECKLIST

As an applicant for license as an emission inspector in the state of Nevada you will be required to pass a practical demonstration examination. If you know how to perform all the following procedures you should pass. To be as prepared as possible you should use this check sheet as you are being trained and check off each item as you learn it. When the checklist is completely checked off you should be ready for the examination. Do not check off any item you are unsure of, ask the instructor for further clarification.

This checklist must be turned in at the time of the examination.

PRE-INSPECTION PROCEDURE

Perform a three day calibration

Change calibration gas bottles (verbal explanation acceptable)

Enter Status Screen

Perform Data File Refresh

Enter I/M test mode

Ensure the vehicle is at operating temperature (gauges, hoses, cat, etc.)

Why is an inspection necessary? (county, city, Zip code, Etc.)

Enter Inspectors license number

Enter Inspectors access code

At this point the time begins on the analyzer. There is a thirty (30) minute time limit for this portion of the examination.

Enter VIN from proper location

Enter license plate type (1-NV, 2-non-NV, 3-Government, 4- no plate)

Enter license plate number

Enter County

Enter zip code

Enter vehicle model year

Enter vehicle type (P-Passenger, T-Truck, M-Motorhome)

Enter GVWR if Truck

Enter vehicle make

Enter number of cylinders or R for rotary

Enter type of fuel

Enter type of ignition

Enter dual or single exhaust

Enter odometer reading

Enter AIR equipped (for dilution standards)

Ensure all accessories are off, parking brake set and wheels chocked

Attach Tach lead

Demonstrate three methods to get a Tach signal

Insert probe(s) properly

Perform the 2500 RPM portion of the test

Perform the idle portion of the test

Perform a second chance test if needed

Perform visual verification of smoke at Idle and 2500 RPM

Perform a tampering inspection for secondary Air Injection

Perform tampering inspection for EGR system

Perform tampering inspection for Catalytic Converter(s)

Perform tampering inspection for Fuel Inlet Restrictor

Perform tampering inspection for proper sealed gas cap

Enter inspection fee

Print vehicle inspection report

POST-INSPECTION REVIEW

Verbal explanation of the results of this test

Verbal explanation of a tampering failure

Verbal explanation of a smoking failure

Verbal explanation of a tailpipe failure

Verbal explanation of the waiver requirements in both Clark and Washoe counties

Verbal explanation of components, probable location and operational need for the secondary Air Injection system

Verbal explanation of components, probable location and operational need for the EGR system

Verbal explanation of components, probable location and operational need for Catalytic converter

Verbal explanation of the operational need for the Fuel Inlet Restrictor

Verbal explanation of the operational need for the Gas Cap

OBD TESTING

Determine OBD status (light duty passenger vehicle, 1996 or newer)

Locate & connect to DLC (missing, damaged or inaccessible)

Chock wheels, place in park or neutral, Etc.

Key On Engine Off, did the MIL light?

Start Engine & click Connect to Vehicle

If error connecting comes up then what? (try again, etc.)

Readiness monitors, if too many then what?

MIL status and DTC screen

Is the vehicle smoking? Yes or no

Print VIR

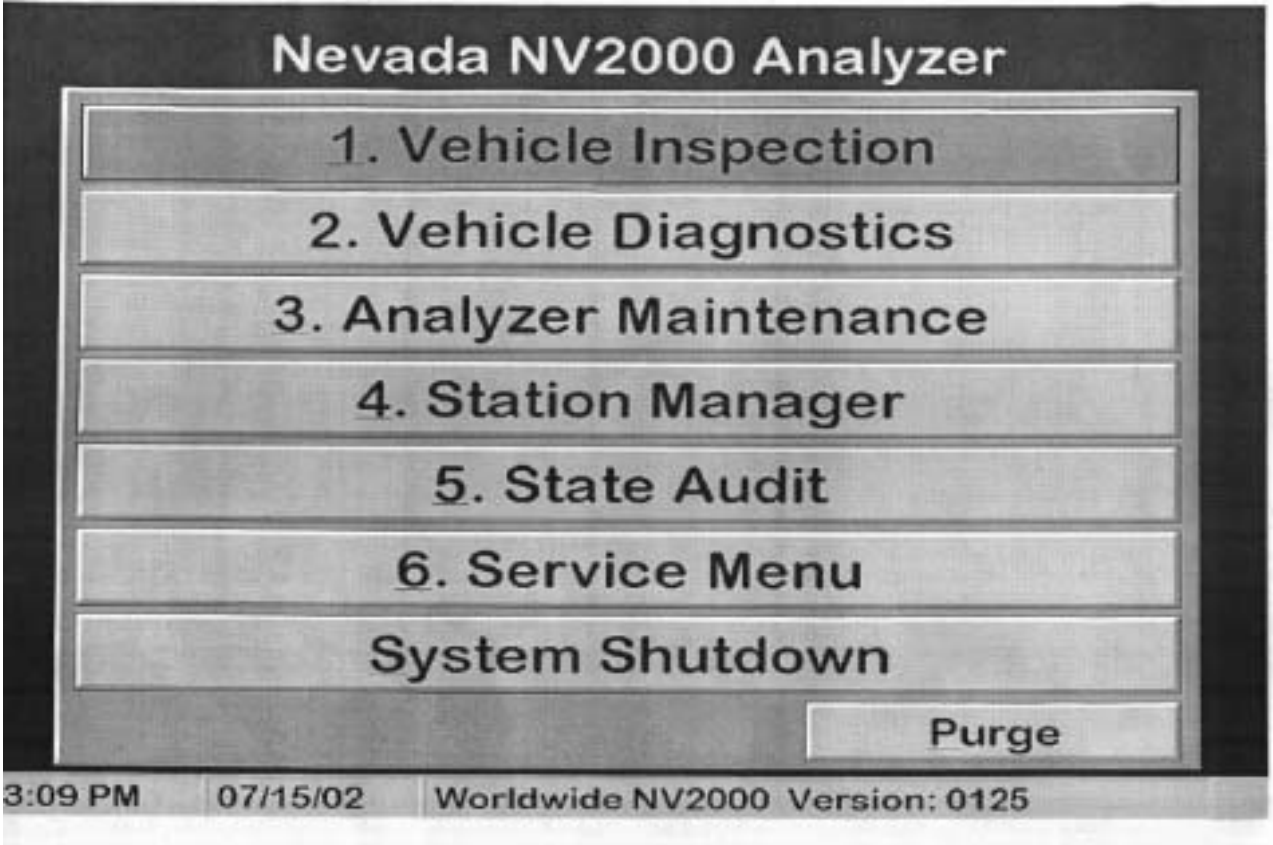
The preceding three pages are the training checklist and should be completely covered prior to attempting the Practical examination. As each item is explained to your satisfaction you should check off that particular box. Do not check off a box if you are unsure.

When you have all boxes checked off have your instructor sign this sheet and then you sign and date it, signifying that you have been instructed in all areas of the practical examination, then bring this checklist with you to the practical examination.

Instructor _____

Applicant _____

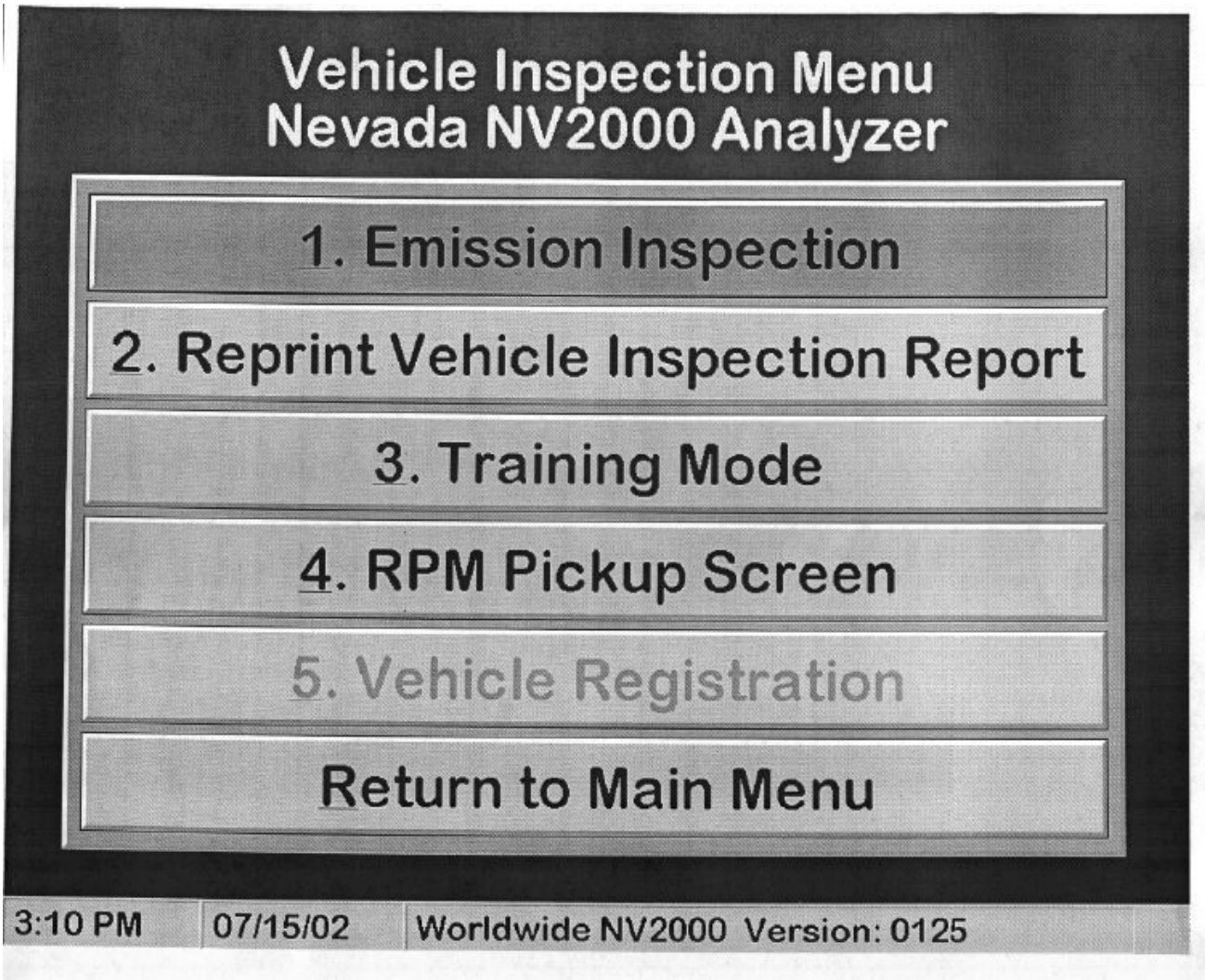
Date _____



- It is the EMISSIONS INSPECTORS RESPONSIBILITY to make sure the vehicle requires an emissions test.
- A customer who's vehicle did not require an emission test, but was tested anyway, will be entitled to a complete refund for all certificate fees, electronic transmission fees & labor fees that may have been charged.(NAC 445B.586)

- THE MAIN MENU SCREEN
- This screen is the starting point for both the 1995 and older tailpipe test (also includes 1996 and newer heavy duty vehicles) and the 1996 and newer light duty OBDII test. To enter the test mode click on the vehicle inspection box.
- Remember to double click or push enter on the highlighted box to confirm your entry.
- The box should change color indicating your entry has been accepted.

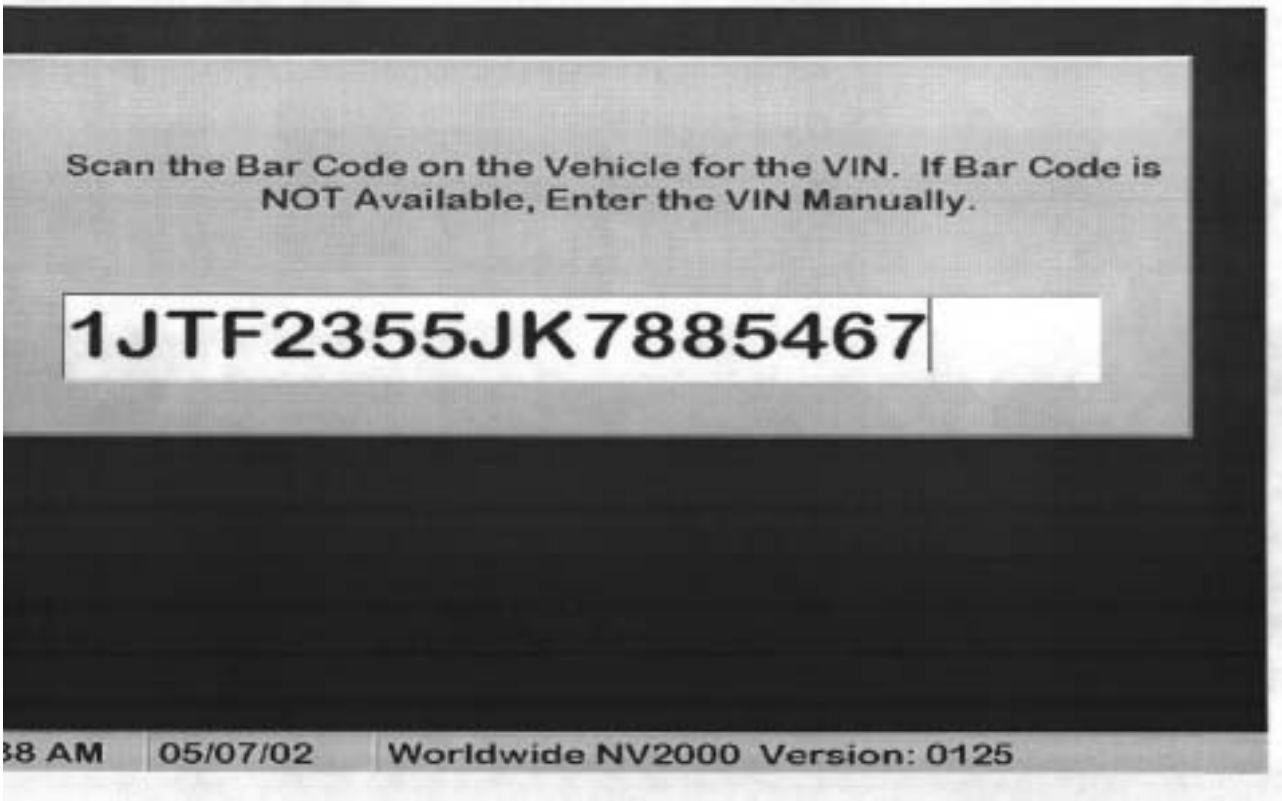
- Follow the emission analyzers screen prompts to the letter!
- This will ensure that the proper State prescribed emission test procedure will be followed.
- **An inspector must!**
- Test the vehicle in the condition in which it was received. **No exceptions!**
- **DO NOT PRETEST!**
- Perform the complete test from start to finish.



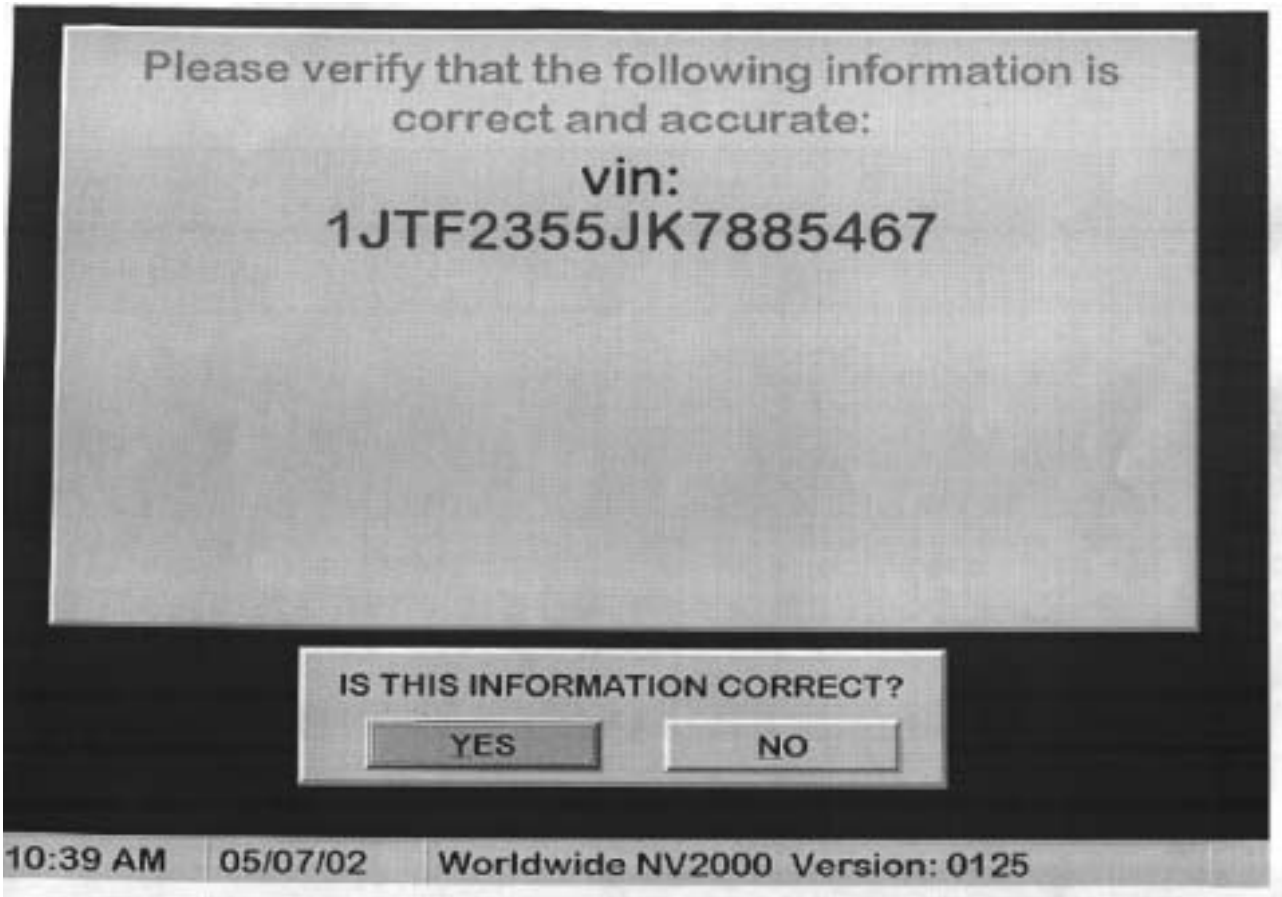
- To enter the emission inspection mode click on Emission Inspection.

- Now enter your Inspector license number.Remember your Inspector license number begins with an I not a 1.
- Enter zero’s not o’s.

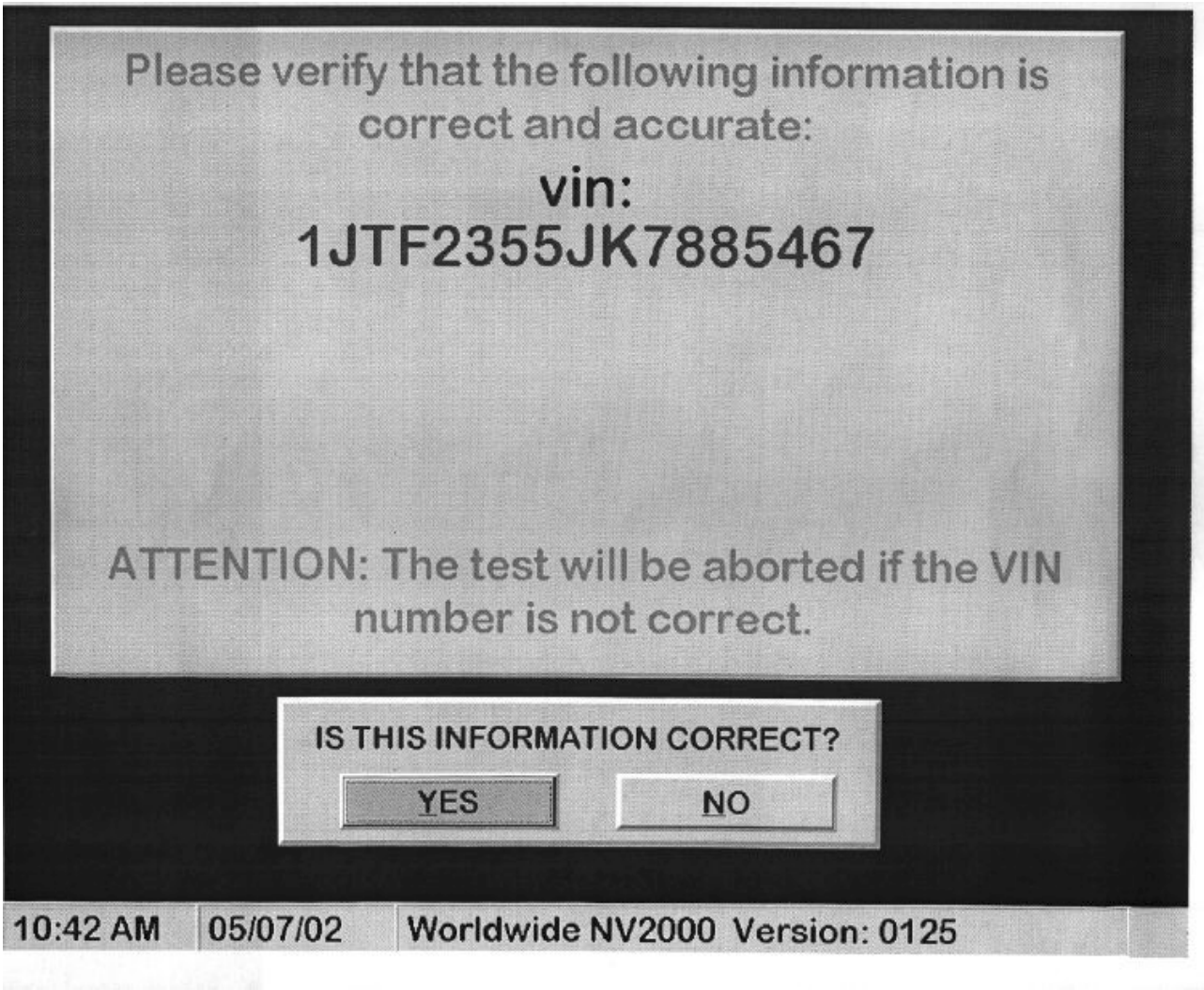
- Now enter your five digit access code and click on ok.
- **Do not share your access code with anyone!**
- **Sharing your access code with anyone can result in a fine or a suspension! NAC 445B.489**



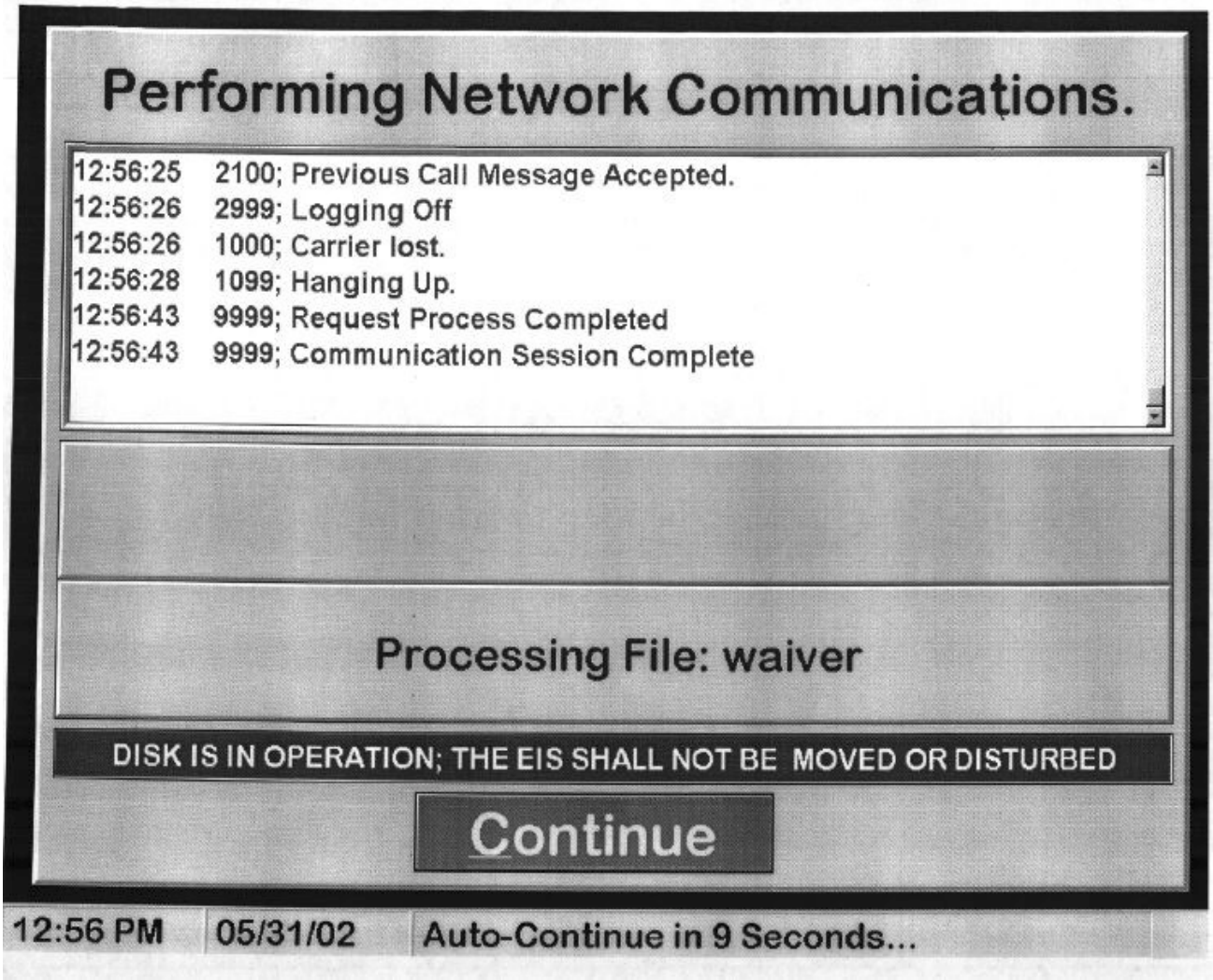
- Next you may either scan the VIN. Number or enter it manually. Remember if you use the scanner you must check your entry for errors!
- A VIN error will create an invalid VIR.



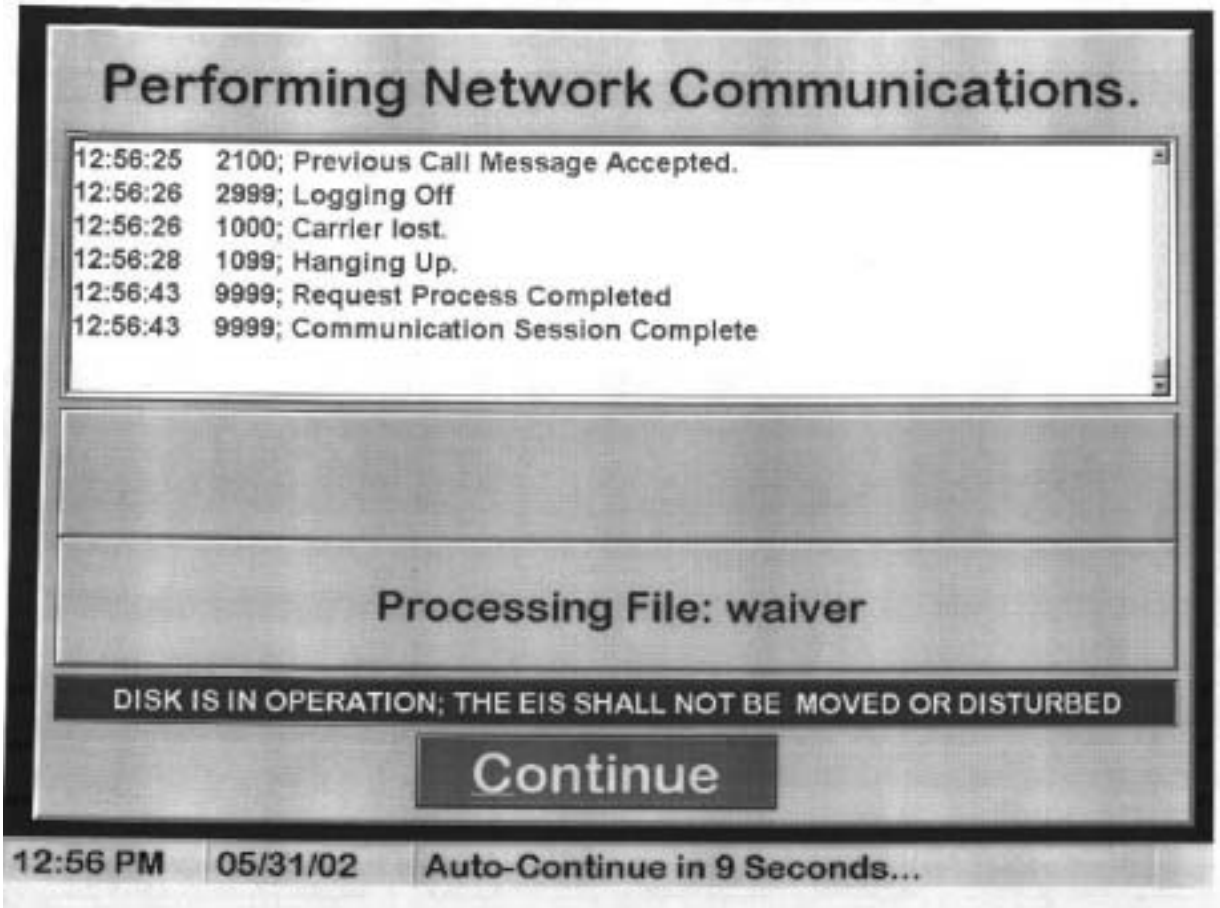
- This screen is your last chance to make changes in your VIN Entry! Now is the time to verify your entry. Recheck the VIN at the vehicle.(Do not use the VIN you have written on your note pad) If it is not correct click on the NO box and re-enter. If it is correct click on the YES box and continue.



- Remember if the VIN is entered manually it must be entered twice to verify and confirm the entry.
- If the VIN. Is scanned, the analyzer will require only one entry, however it must be manually verified to check for scan accuracy.



- The analyzer will now begin communicating with the **Vehicle Information Database(VID).**
- **Do not** move the analyzer while the disk is in operation!

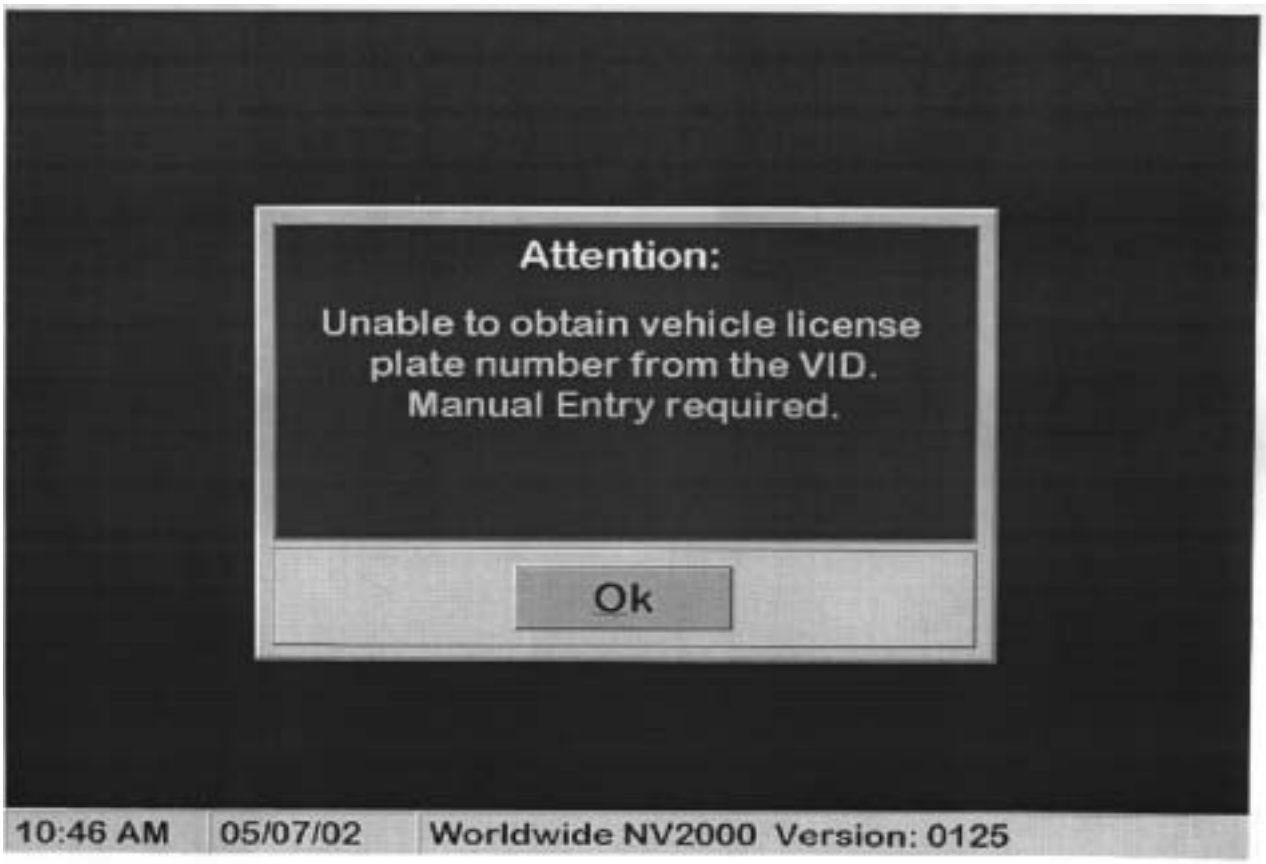


- The analyzer will advise that the communication session has been completed.
- **Do Not** move the analyzer while the disk is in operation!

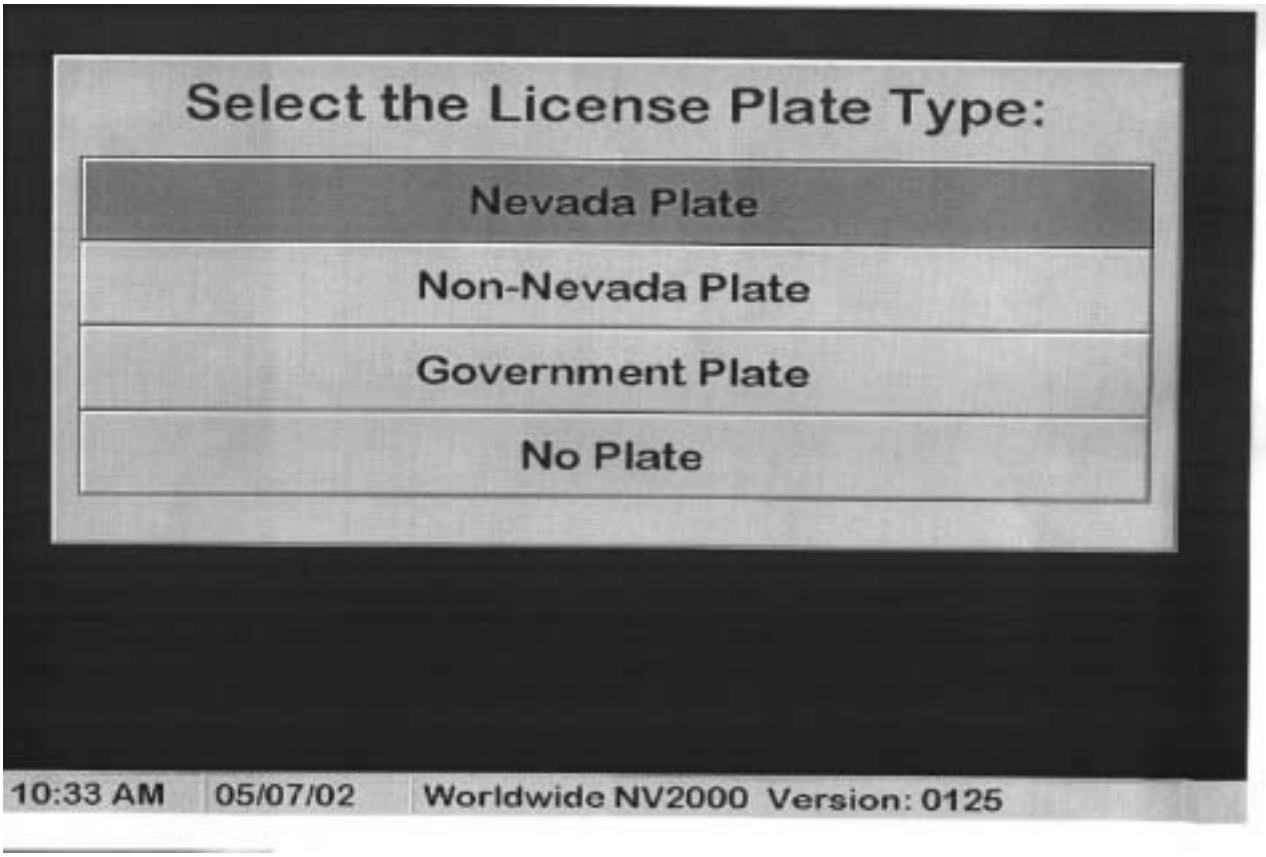
- This screen gives the technician the chance to read recall information on the vehicle.

- NEW STATE MESSAGES
- This screen is used to provide information related to the emission program. This information should be reviewed at least once a day and printed as needed.
- Once read or printed this screen should not appear again for the same inspector.

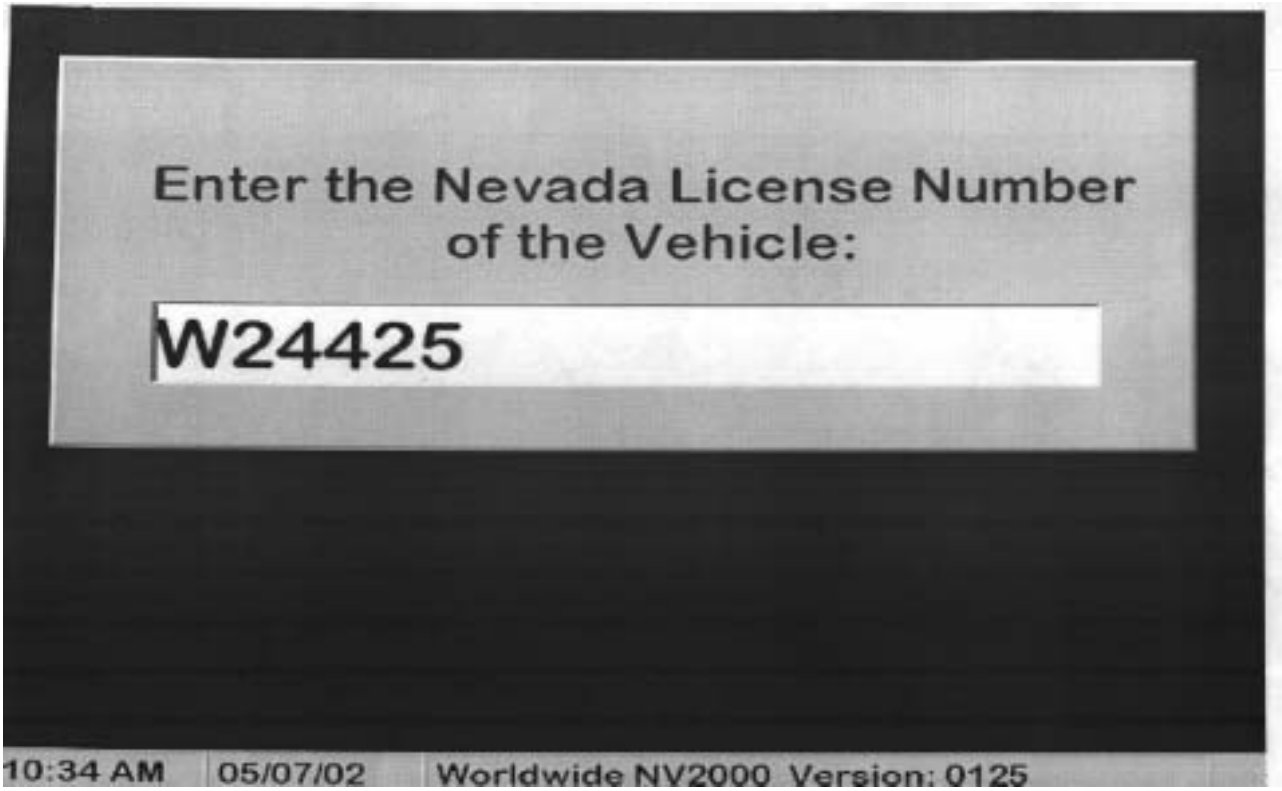
- When " The Vehicle Does Not Match " screen comes up the technician must advise the customer that he or she will not be able to renew by telephone or by internet.
- The customer must renew by mail or in person at a DMV office.
- The Vehicle Information Database (VID) does not recognize the vehicle.



- This screen is a result of the VID not recognizing the vehicle.
- The license plate must be entered manually.

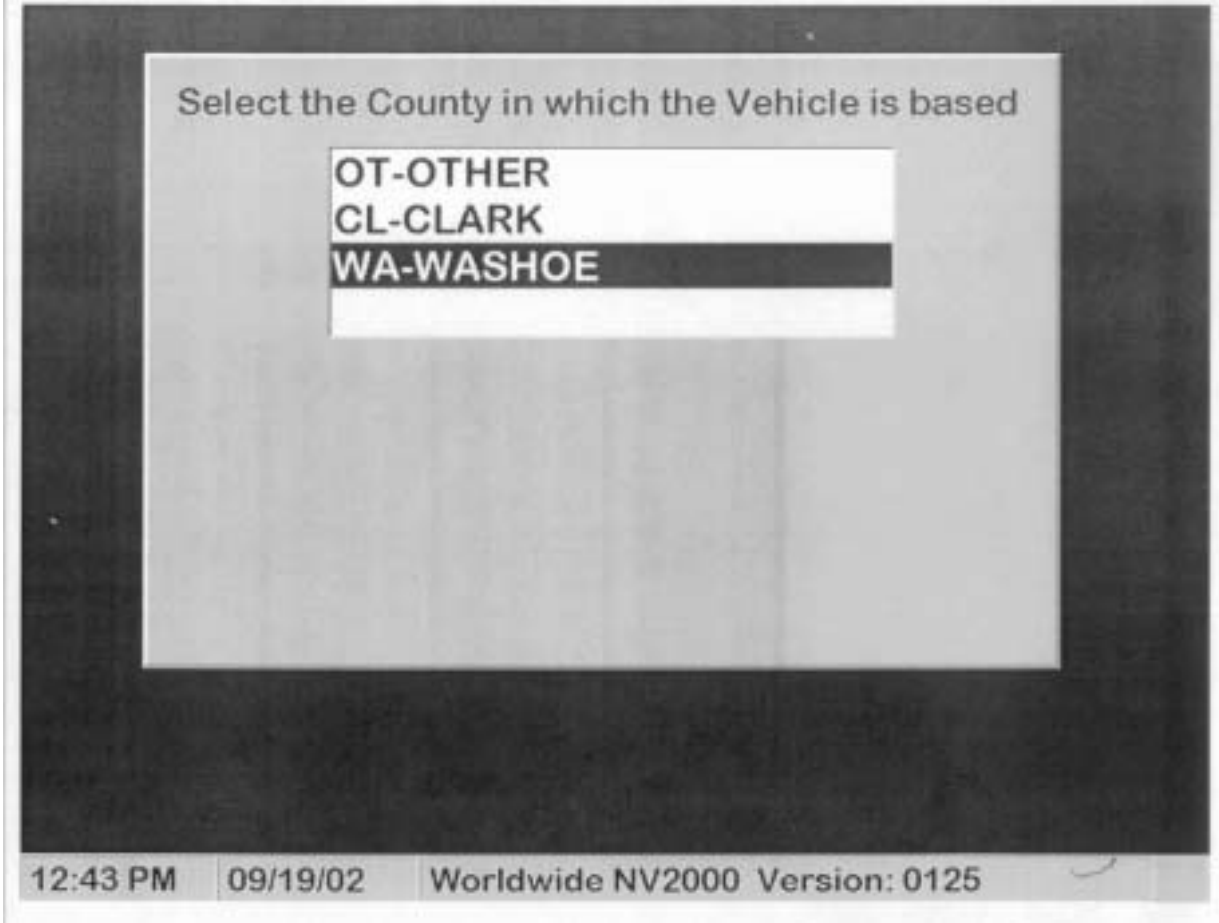


- ENTER PLATE TYPE
- All plates that say NEVADA on top are NEVADA plates. (EX38380 is a Nevada plate)
- Any other Country or State license plate is a Non-Nevada license plate.
- Only plates that say US **GOVERNMENT** are Government license plates.
- Walk behind the vehicle and verify no plate is present
- If the vehicle has no plates, click on the "No Plate" box.

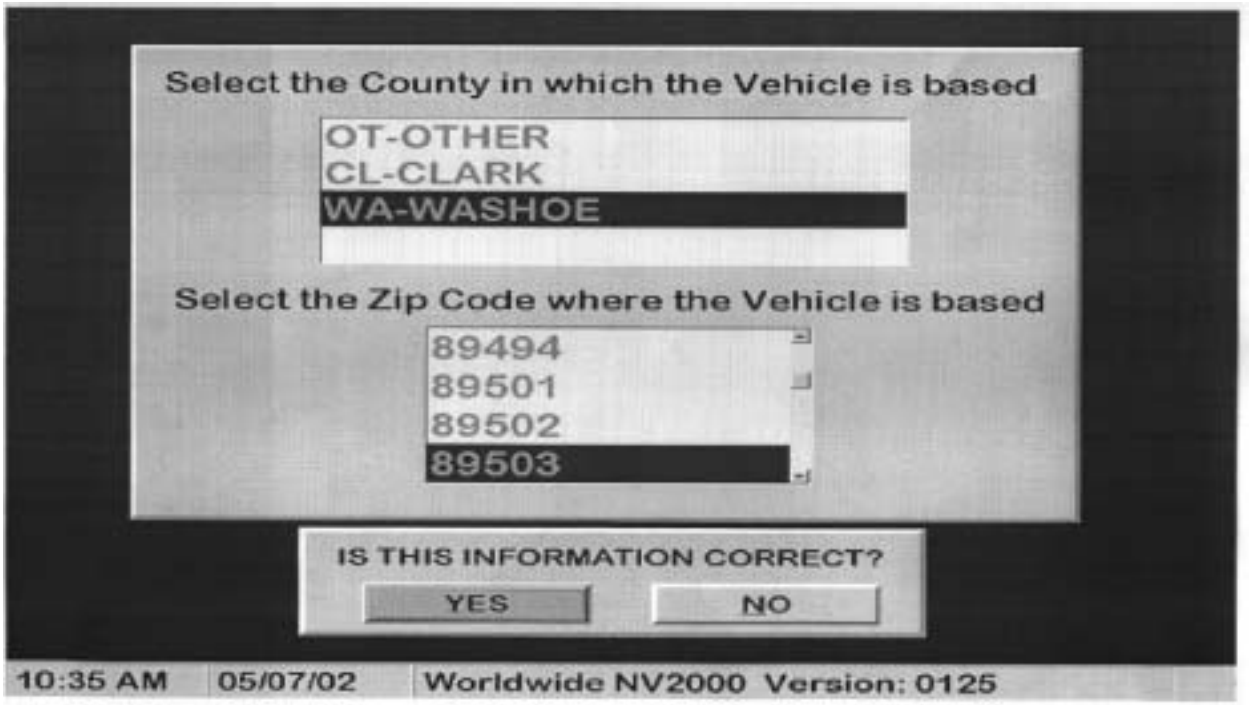


- Enter the plate exactly as seen.
- Run all numbers and letters together.
- Do not enter any spaces.
- An example would be EX38380 not EX 38380 or ABC123 would be correct not ABC 123.
- Do not try to enter any dots stars or any other symbols.

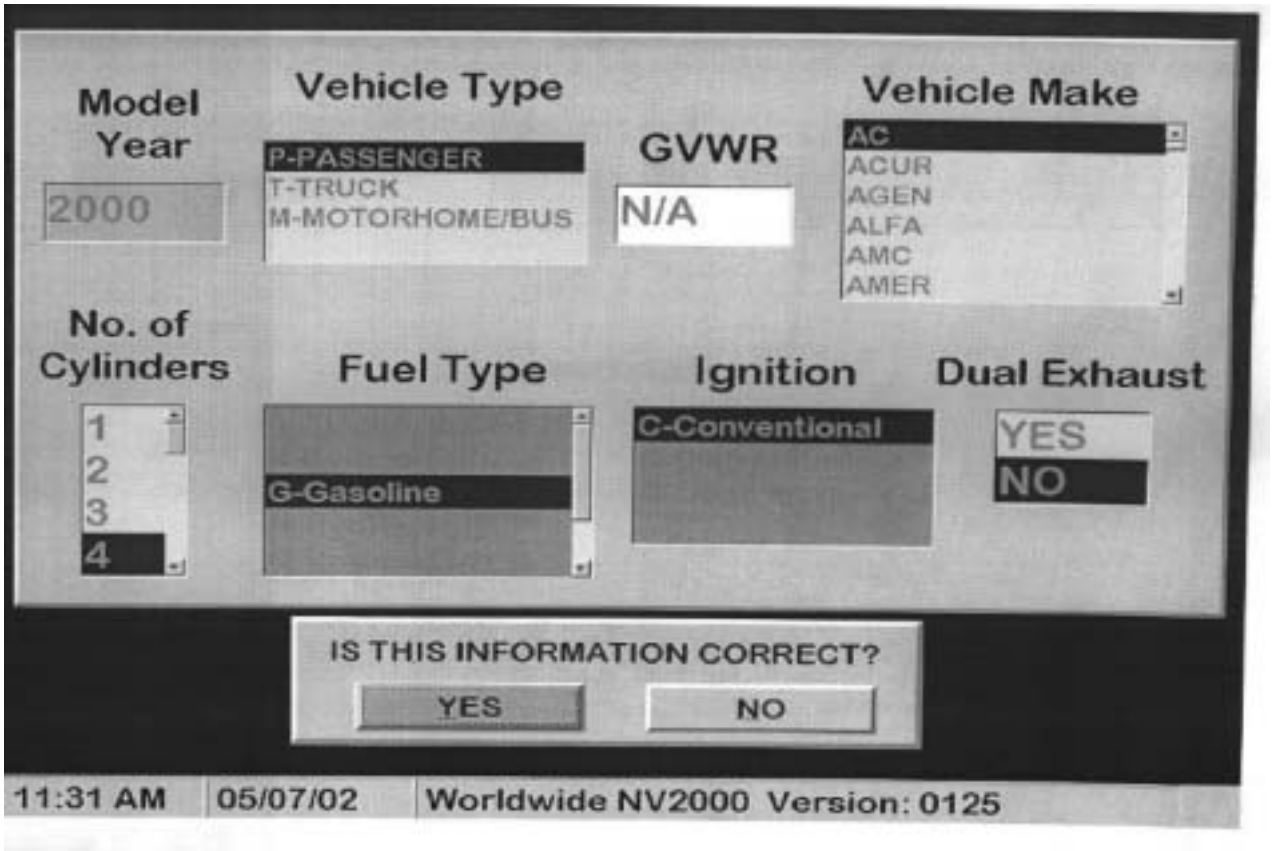
- This is your last chance to verify you have entered the correct license plate number and type.
- If you have made an error click on no and re-enter the correct information.
- If everything is correct click on yes and continue with the test.



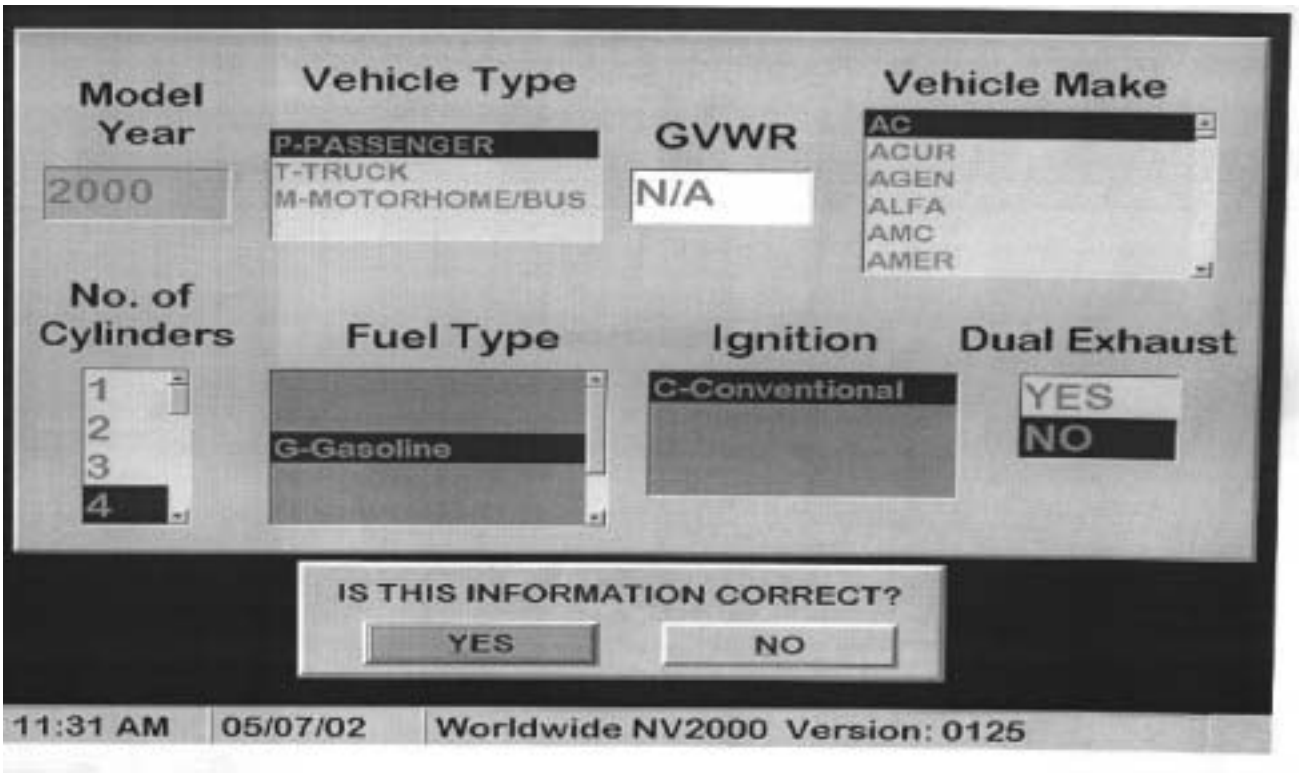
- Enter the correct county.
- Ask for the name of the city the vehicle will be located in to help ensure the vehicle requires a test
- Enter other if:
- The vehicle has out of state plates and the customer has no local legal address.
- The customer has requested a test for a vehicle that is in an exempt area.



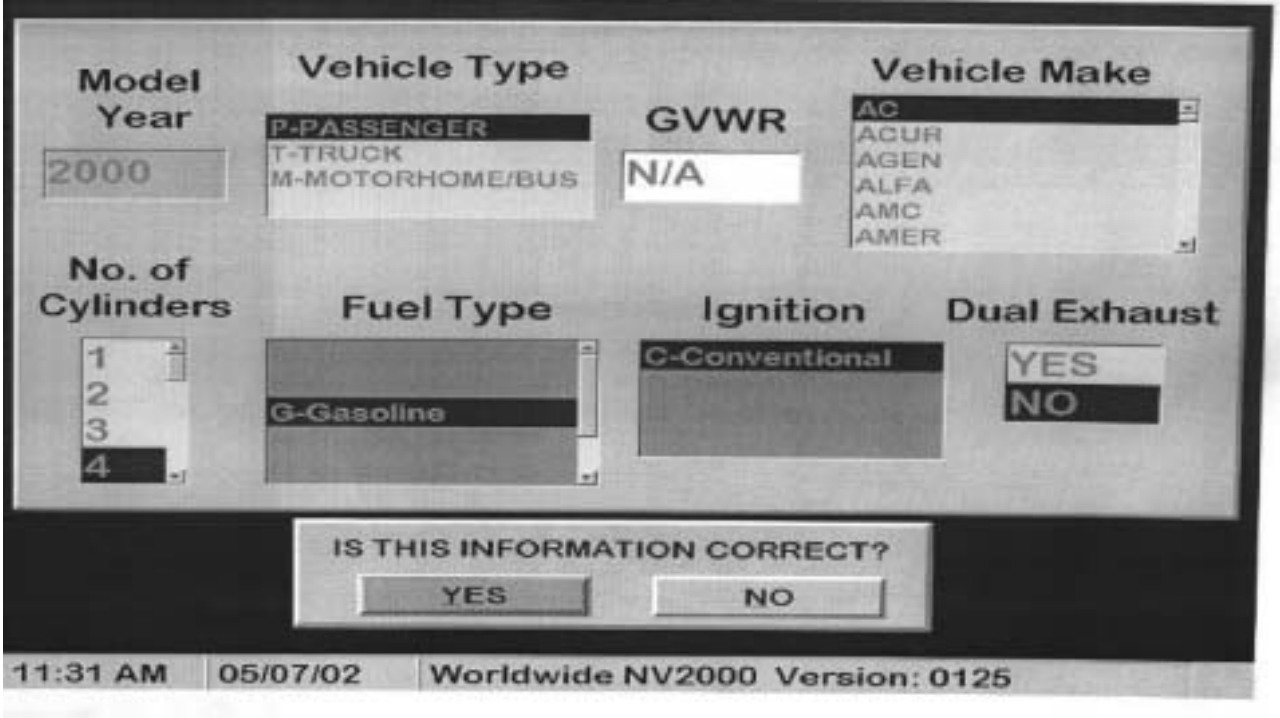
- ENTER COUNTY & ZIP CODE
- ONLY CLARK AND WASHOE COUNTIES REQUIRE EMISSION TESTING!
- Be aware there are exempt areas within Clark & Washoe Counties.
- It is the inspectors responsibility to verify that the County, City, Zip Code and model year require an emissions test!
- If a ZIP code is not shown in your analyzer something is wrong. Be sure the vehicle requires a test.



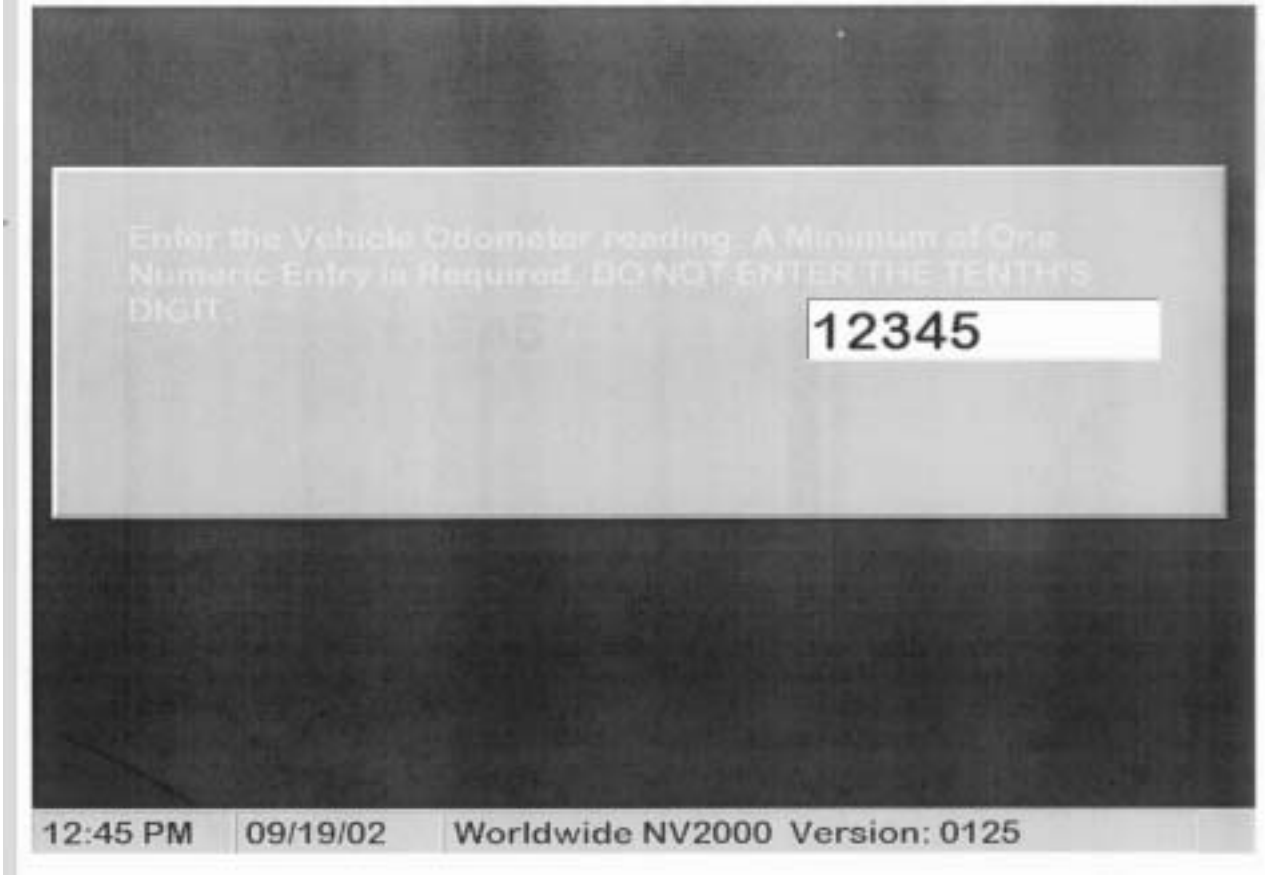
- Correctly enter the model year of the vehicle. This can be determined by reading the under hood label or by matching the tenth digit of the vehicle identification number with a model year chart.
- The tenth digit model year method does not apply to1979 and older vehicles.



- Correctly enter:
- P = For passenger vehicles (15 passengers or less)
- T = Truck (Any vehicle designed for the transportation of property)
- M = Motorhome or bus (16 passengers or more or a vehicle designed for recreation)
- M = Chassis mounted camper
- Correctly enter the gross vehicle weight rating if the vehicle is a truck.
- This can normally be found on the drivers door post. Be sure to use the GVWR and not the gross axle weight rating.



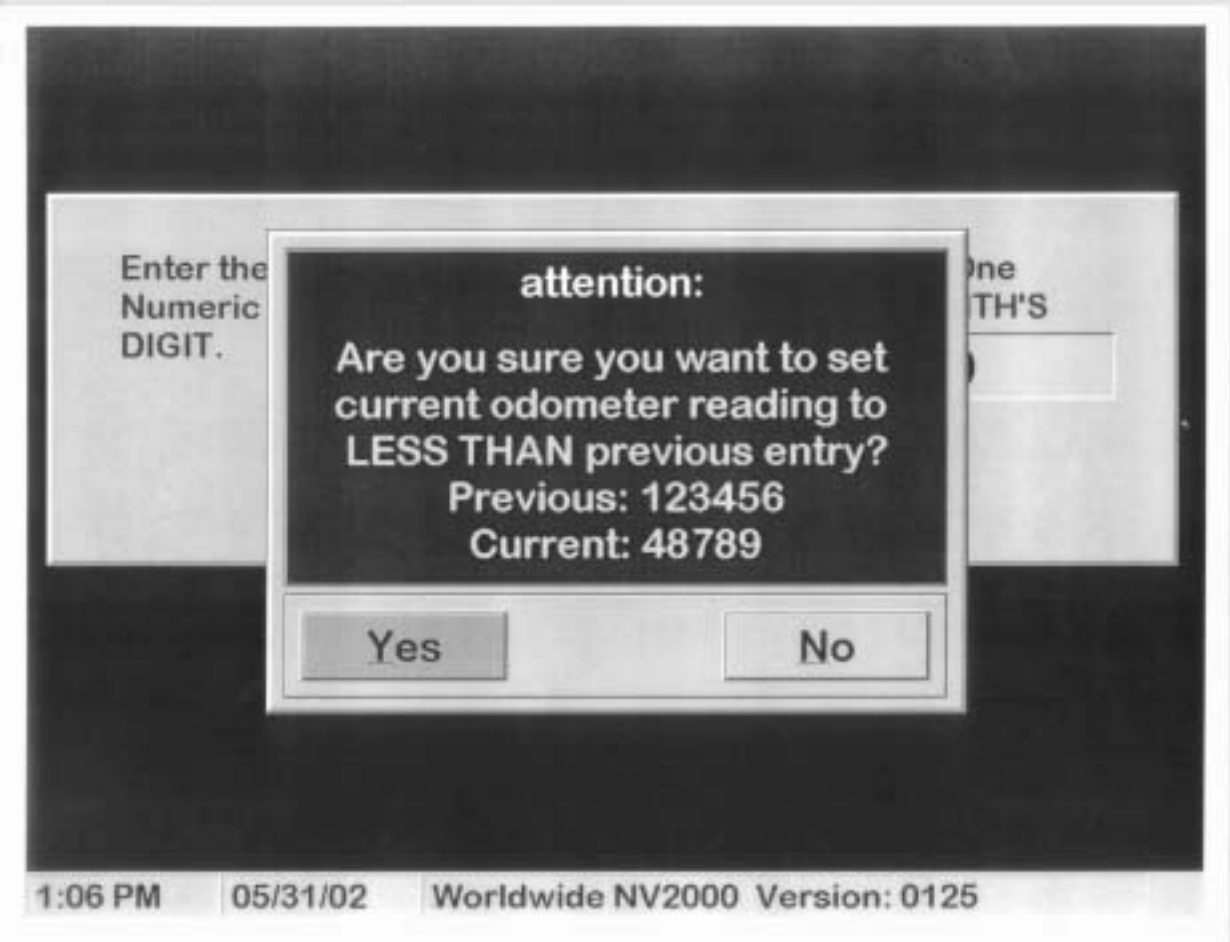
- Correctly enter the vehicle make. (DODGE, CHEV,HONDA)
- Correctly enter the number of cylinders.
- Correctly enter fuel type: Gasoline, Alcohol, Natural Gas, Propane, Hydrogen or Dual Fuel. (This is a scroll screen display)
- Correctly enter the ignition type:
- Conventional, Distributorless or Quad four.
- Correctly enter exhaust type:
- Single or Dual



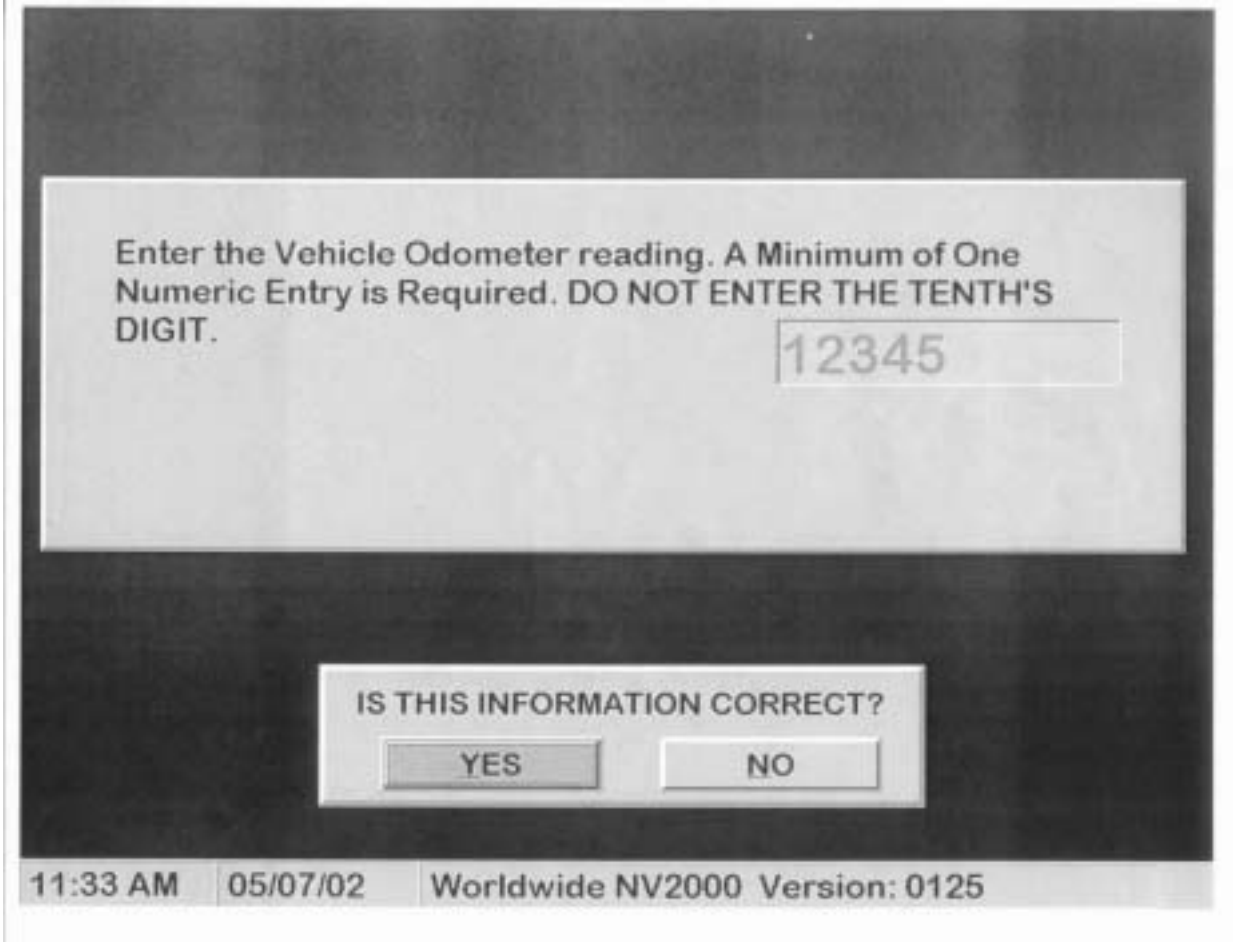
- Enter the odometer reading exactly as you see it. Do not enter tenths.

- Do not enter spaces or O's.

- If the odometer is blank enter 1.
  - Example: A LCD display that is not functioning and only displays a blank screen.



- This screen appears if you have entered an odometer reading that is lower then the previous entry.
- If you verify your entry is correct click on Yes.
- If you have made an error, click on No and enter the correct information.



- Confirm that the entry is correct.
- Remember no spaces or o,s.
- If all is correct click on Yes.
- If incorrect click on No and re-enter.

At this point the common portion of the test ends.

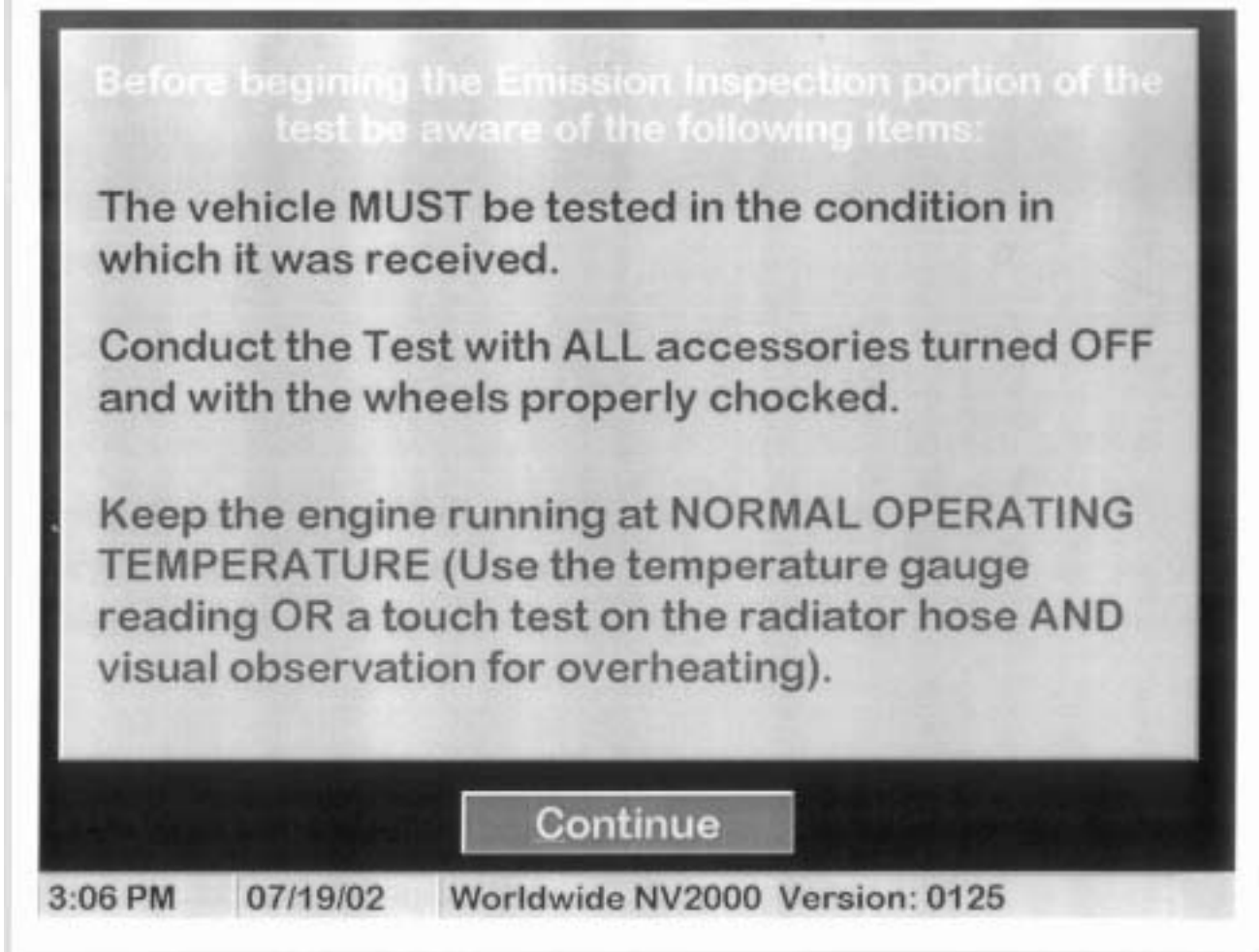
- If your vehicle is a 1968 to 1995 you will now enter the two speed idle test or tail pipe test.

- If your vehicle is a light duty 1996 to current you will now enter the OBD-II testing mode.

- If your vehicle is a 1996 to current heavy duty it will still be tested using the two speed idle test method.

TWO SPEED IDLE TEST-

GASOLINE POWERED LIGHT DUTY VEHICLES
1968-1995 & 1968-CURRENT
HEAVY DUTY GASOLINE POWERED VEHICLES

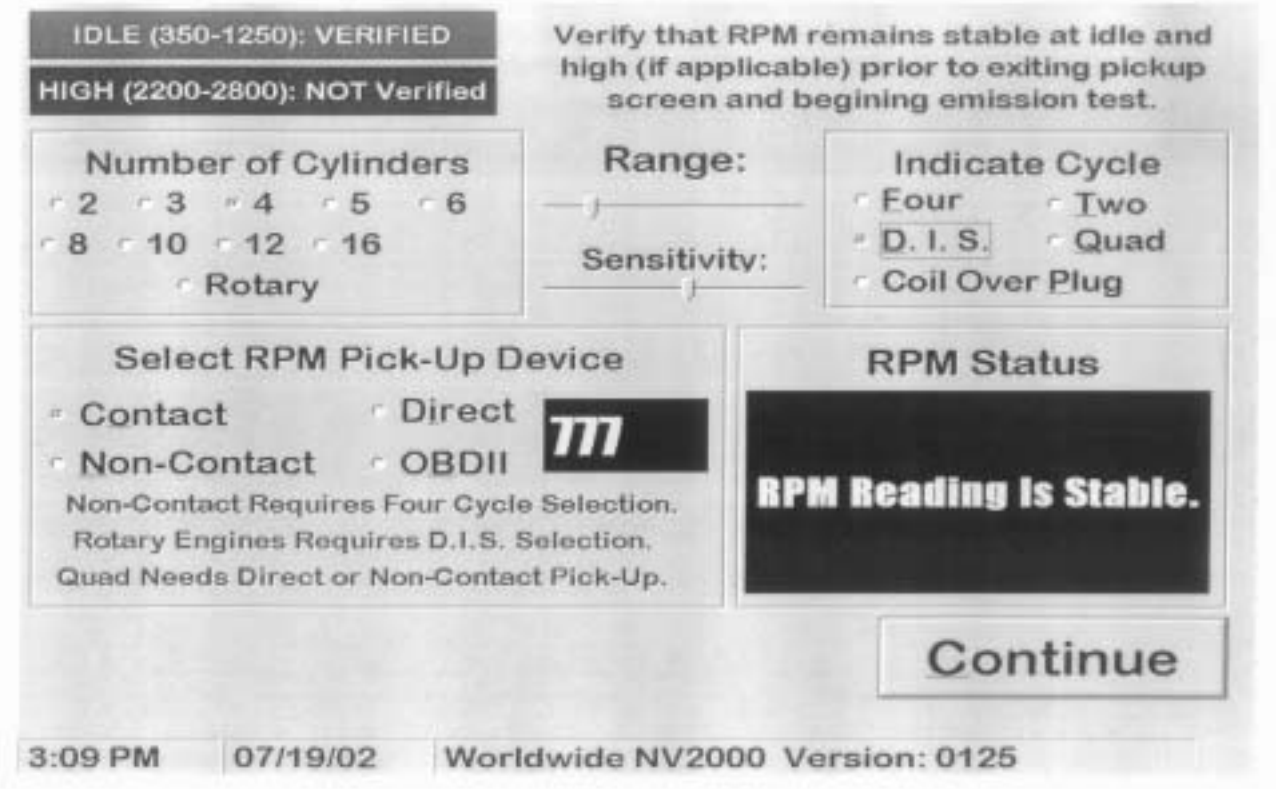


- **<u>VERY IMPORTANT !!!</u>**
- **CHOCK WHEELS!**
- Do not use throttle rods! (Due to safety)
- The vehicle must be tested as received. No exceptions!
- Turn off all accessories.
- Verify that the engine is at normal operating temperature.

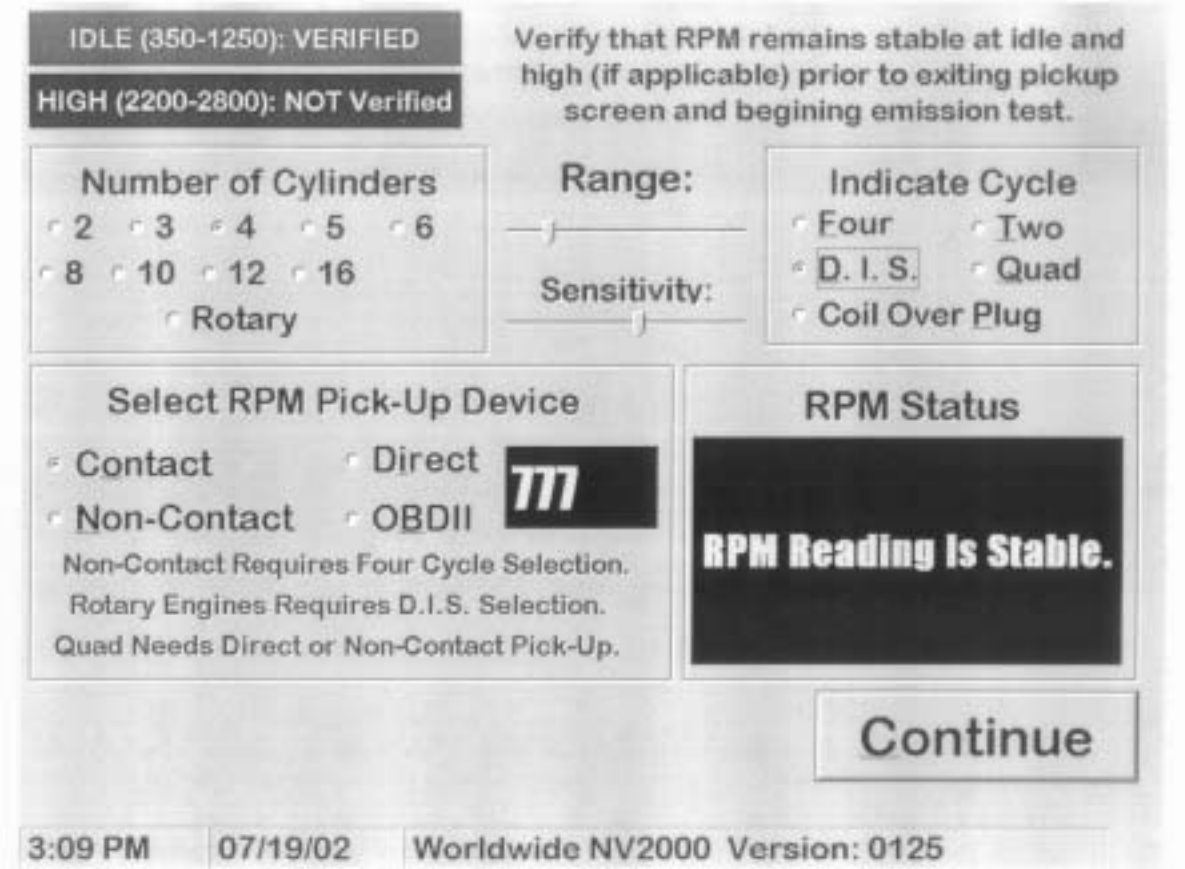
- Fully insert probe in tailpipe.
- Make sure probe will not fall out during test.
- Install needle probe if needed.

(If a screen is installed in a tailpipe)

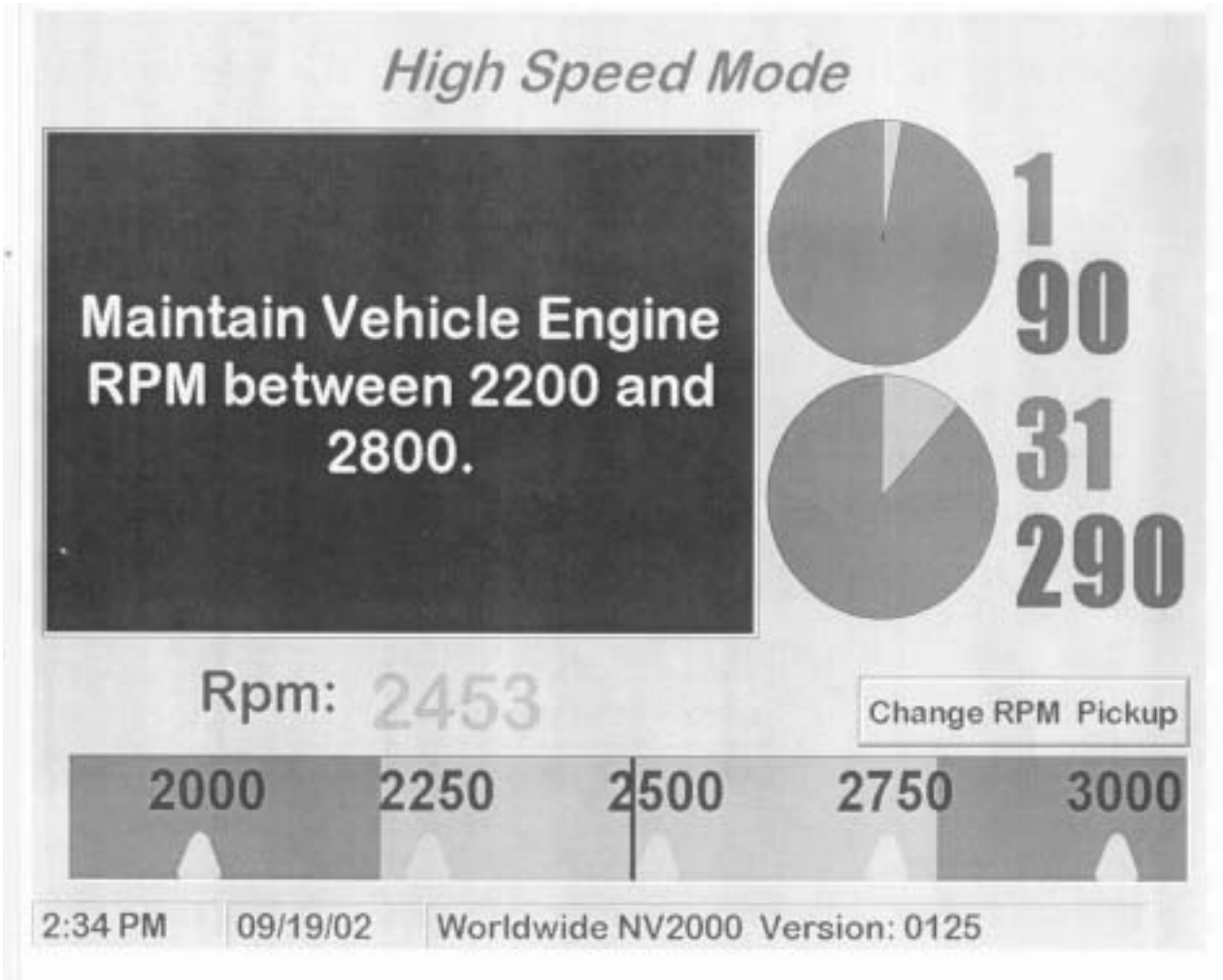
- Note: A vehicle can be tested with a damaged exhaust system as long as the probe will not fall out.
  - No dilution problem is indicated
  - No safety problem exists.



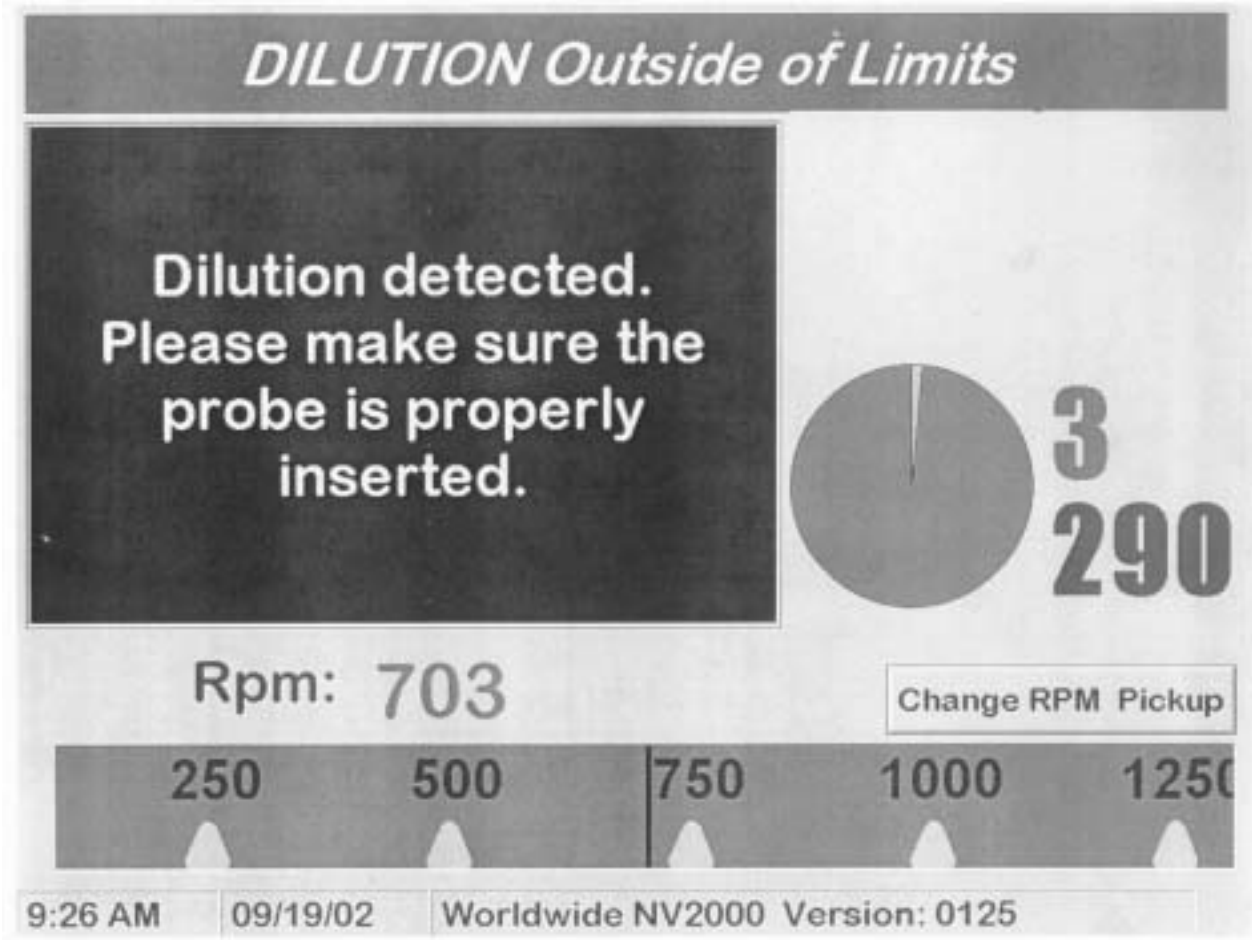
- In this screen you must:
- Enter the number of cylinders.
- Select the correct ignition type.
- Choose the type of tachometer pick-up device being used.
- Verify low rpm tachometer signal.
- Verify high rpm tachometer signal.



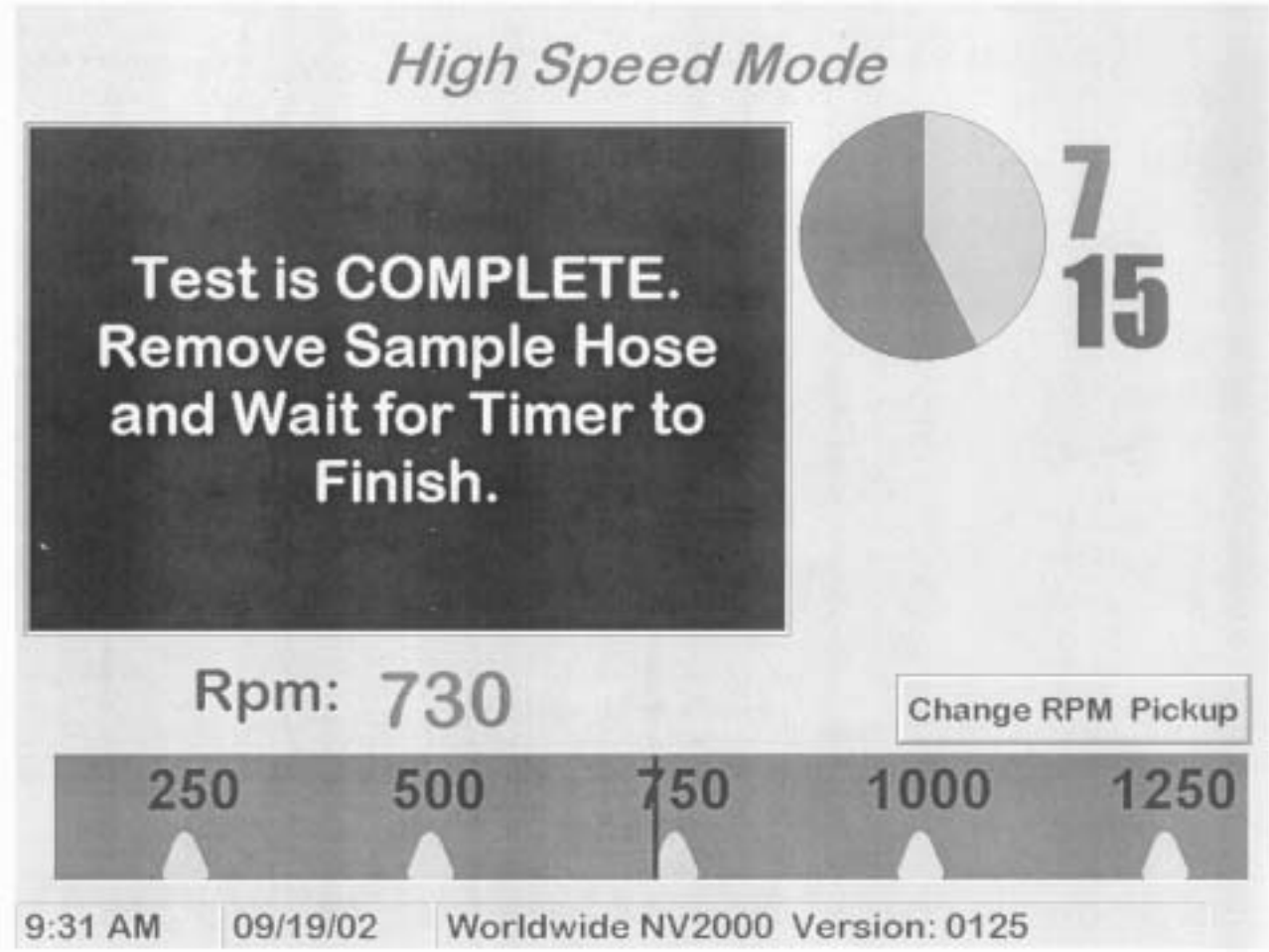
- When using the non-contact tachometer pick-up you must click on the four cycle setting.
- When using the OBDII pick-up be sure to click on the OBDII setting and follow the screen prompts.
- Be aware when using the contact setting you may need to change the cycle setting to bring the rpm into range.



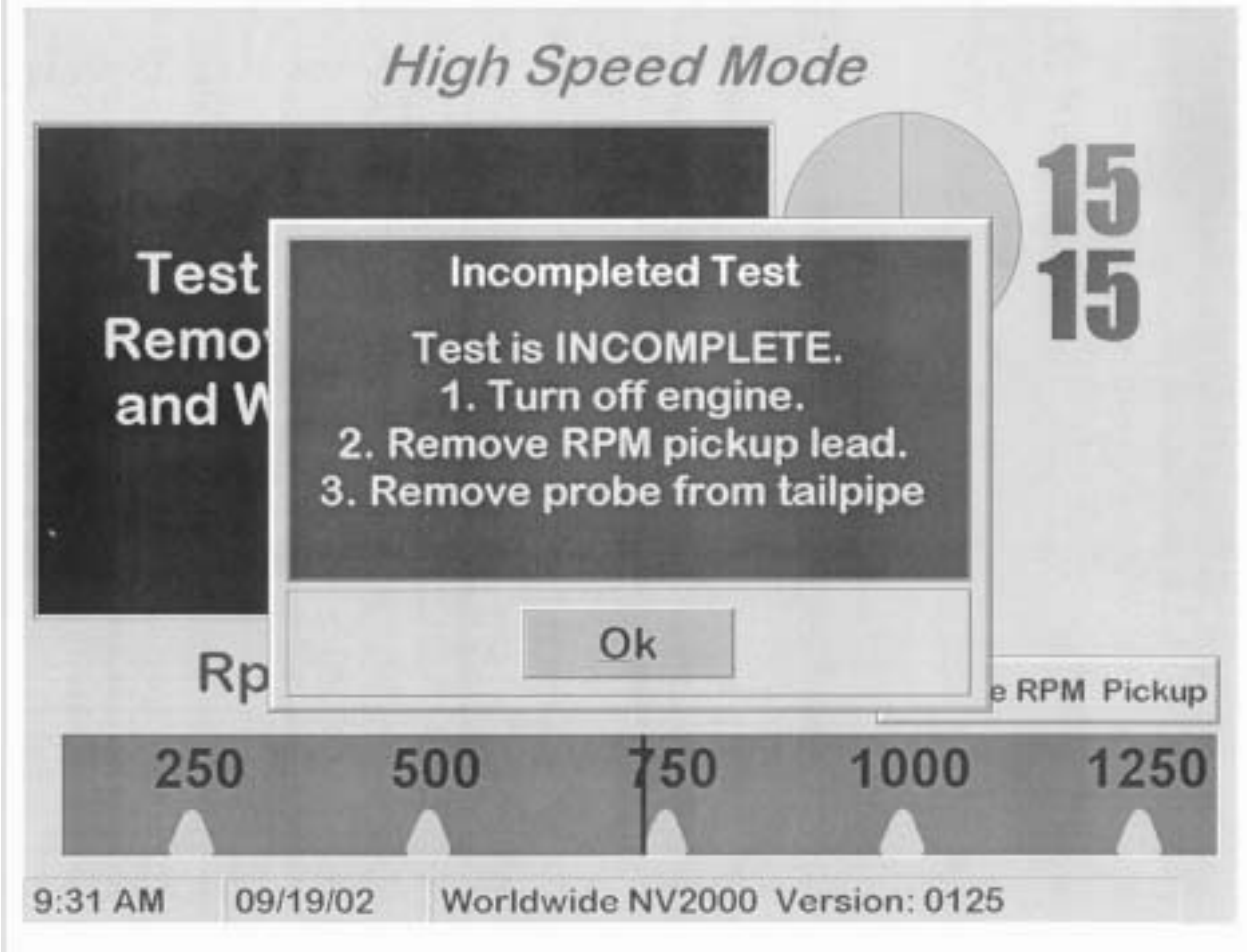
- Maintain engine speed between 2200 & 2800 rpm.
- If high rpm tachometer signal was not verified, watch for tachometer signal drop outs. Drop outs may cause a test failure.
- <u>Be sure to verify both high and low rpm tachometer signals before entering test.</u>



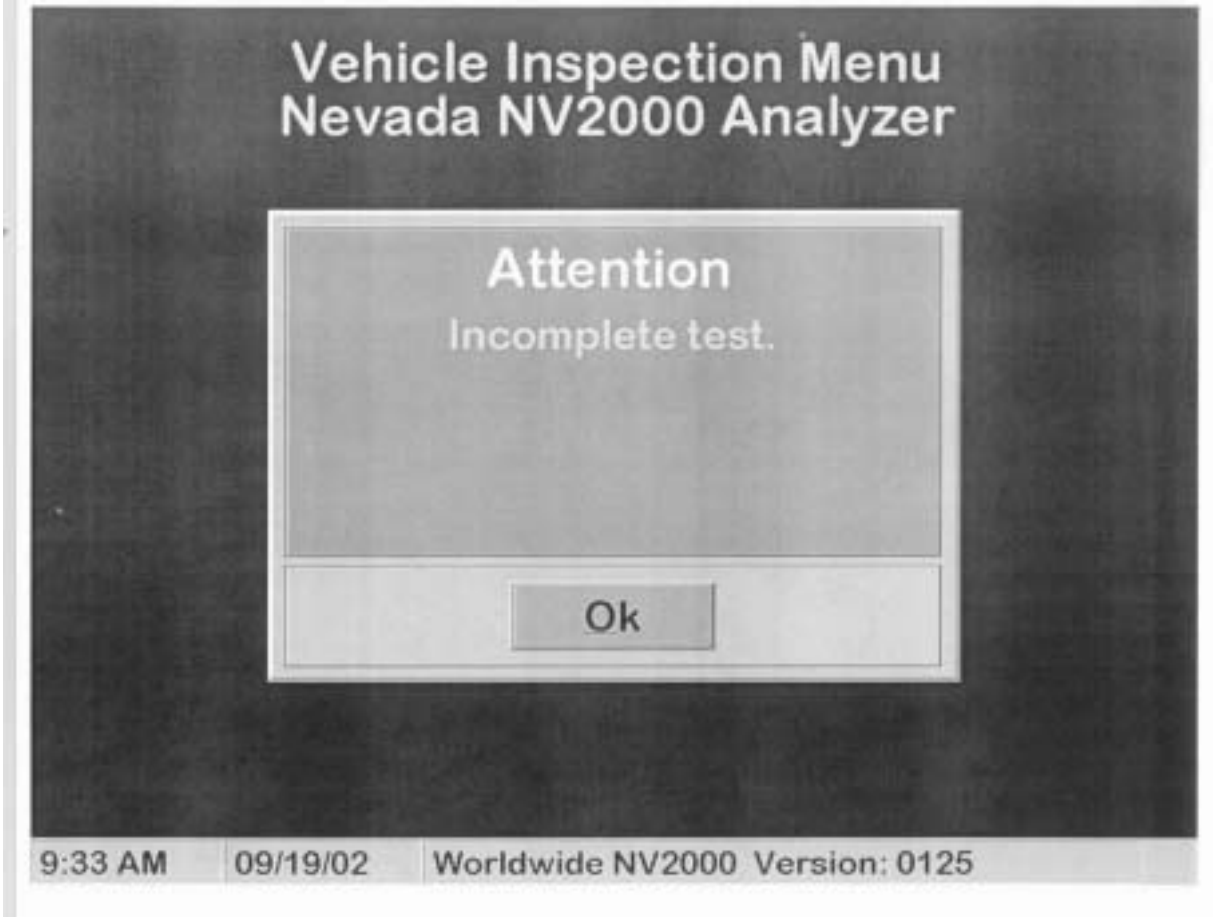
- The dilution warning indicates that the analyzer is not getting a sufficient exhaust sample.
- This can be caused by:
- A leak in the exhaust system of the vehicle.
- A damaged test hose or probe.
- A probe or probes that fell out of the exhaust pipe.



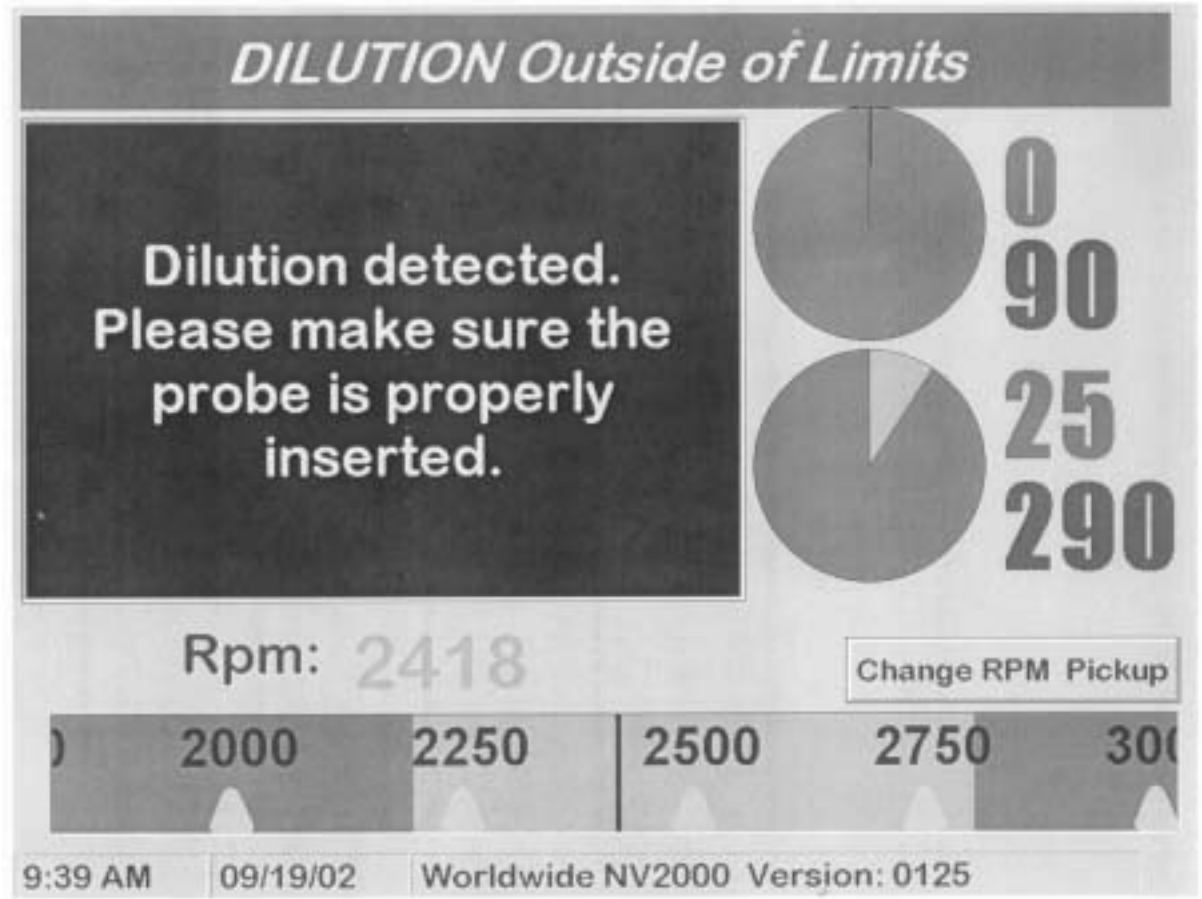
- After failing for dilution the analyzer will advise you to remove the sample hose and wait for the timer to count down.



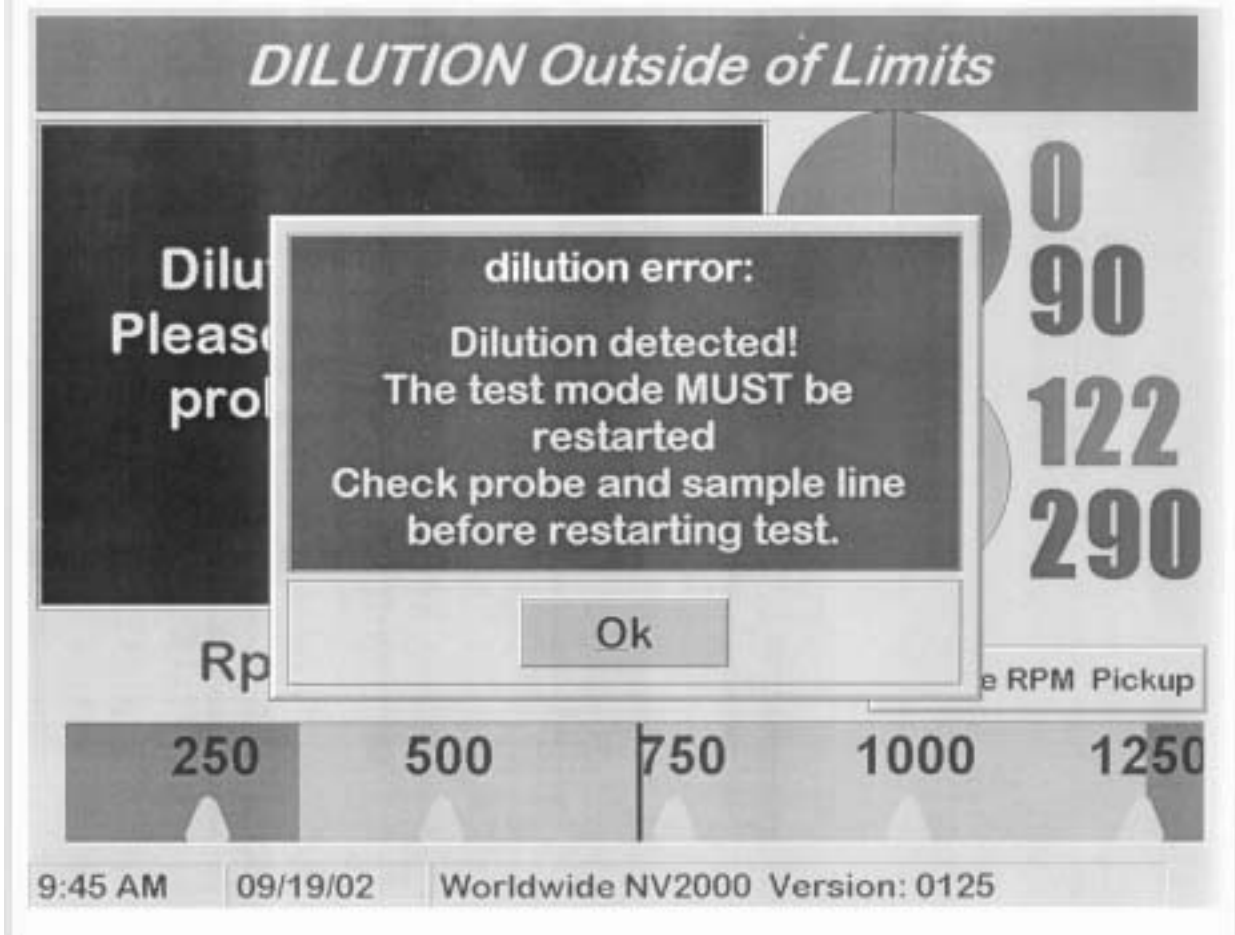
- If the dilution problem is present at the beginning of the test and the problem cannot be repaired the analyzer will time out. This will be indicated by the Incomplete Test screen.
- The problem must be repaired and the vehicle retested.



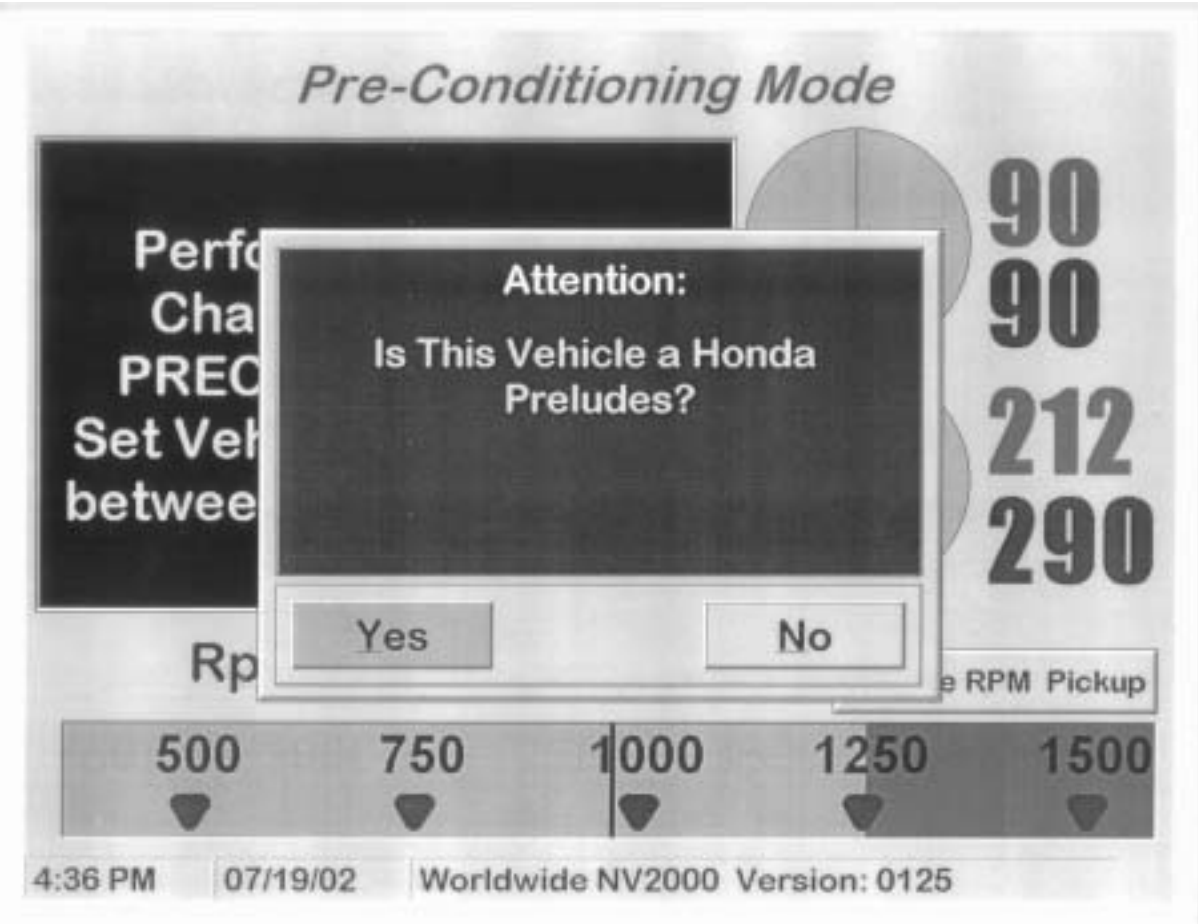
- Remember an incomplete test is not a failure.
- The vehicle may need to be repaired and retested or:
- The analyzer may need to be repaired.



- When dilution is detected after the test has begun the analyzer will prompt you to check that the probe is inserted properly.
- If the probe is inserted correctly the analyzer will halt the test until the problem is repaired.



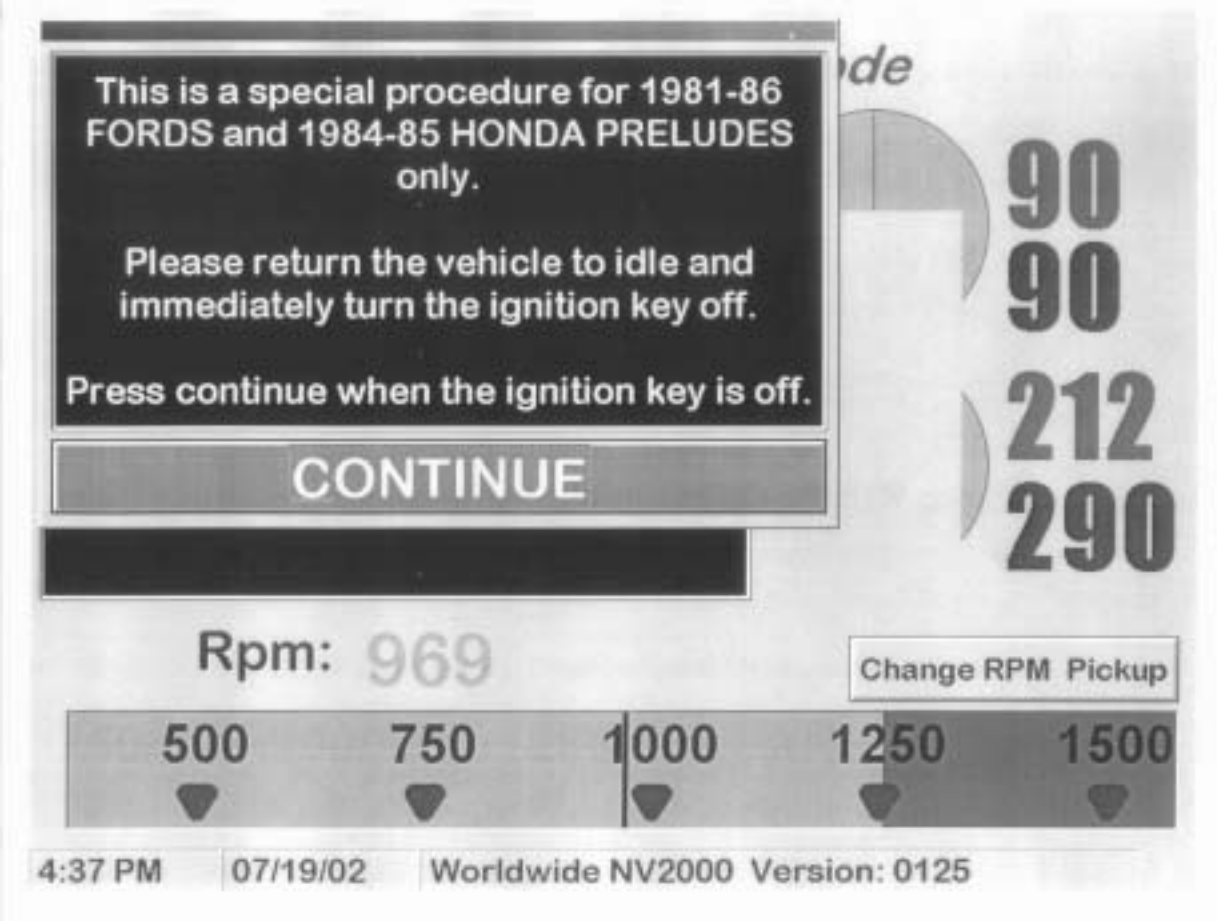
- If the problem cannot be repaired, the test can only be stopped by aborting the test.
- This is the only reason you can abort unless a safety issue is involved.



This screen appears after certain vehicles fail an emission test.

It indicates that the vehicle has special test requirements.

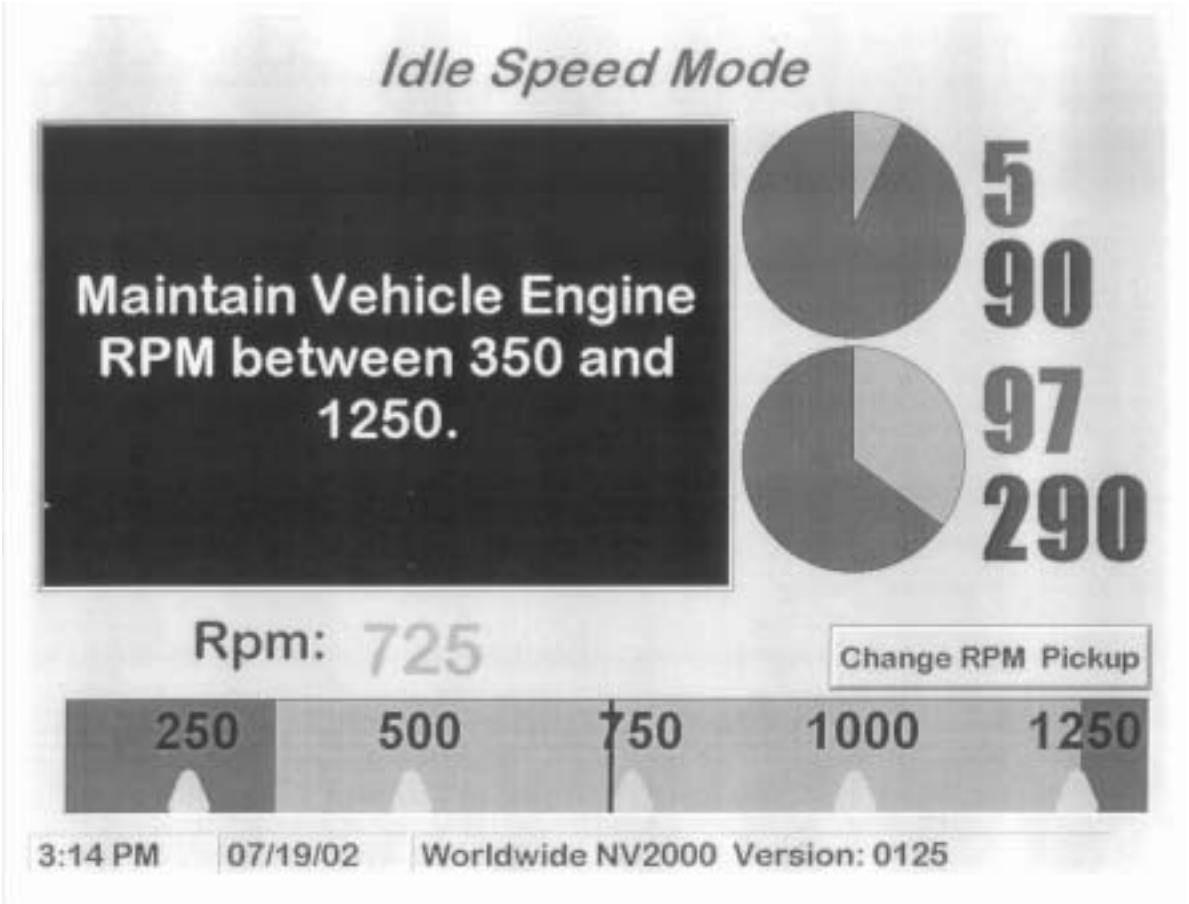
You must follow the screen prompts carefully.



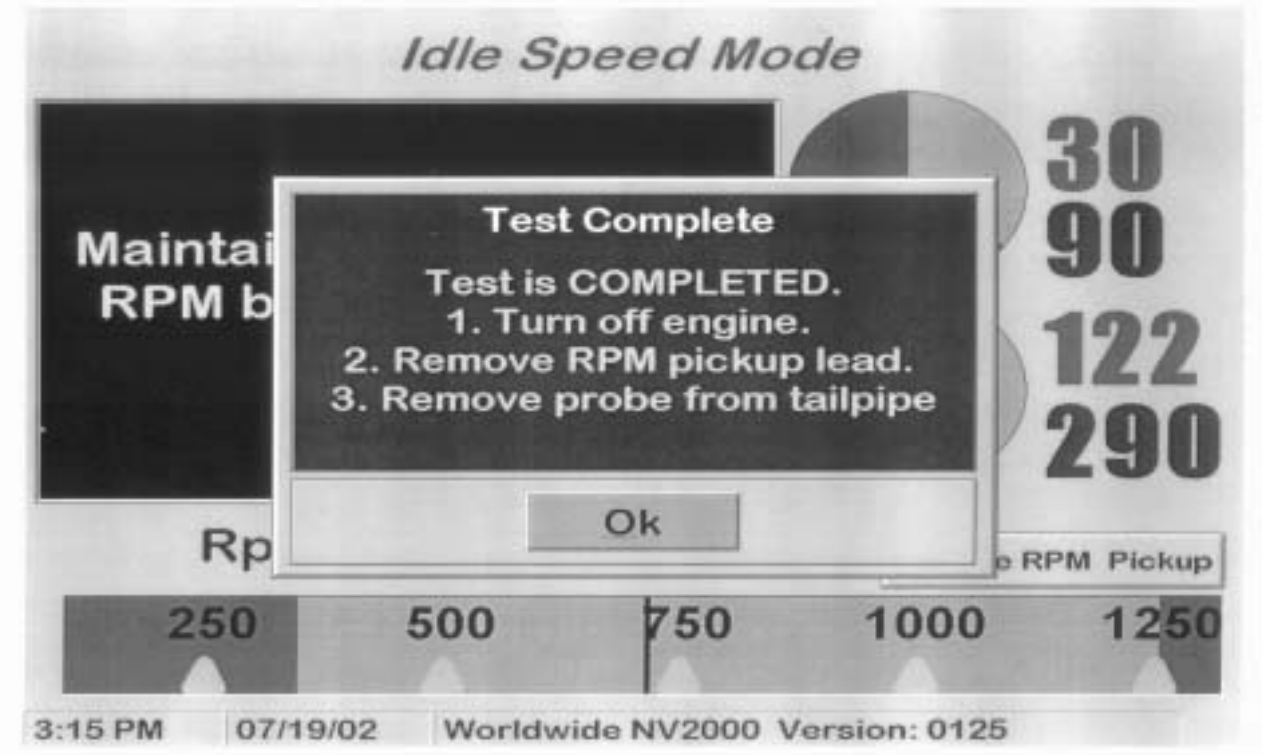
- This only applies to 1981- 1986 Fords & 1984-1985 Honda Preludes.

- If the vehicle you are testing matches the special conditions click on Yes and follow the screen prompts.

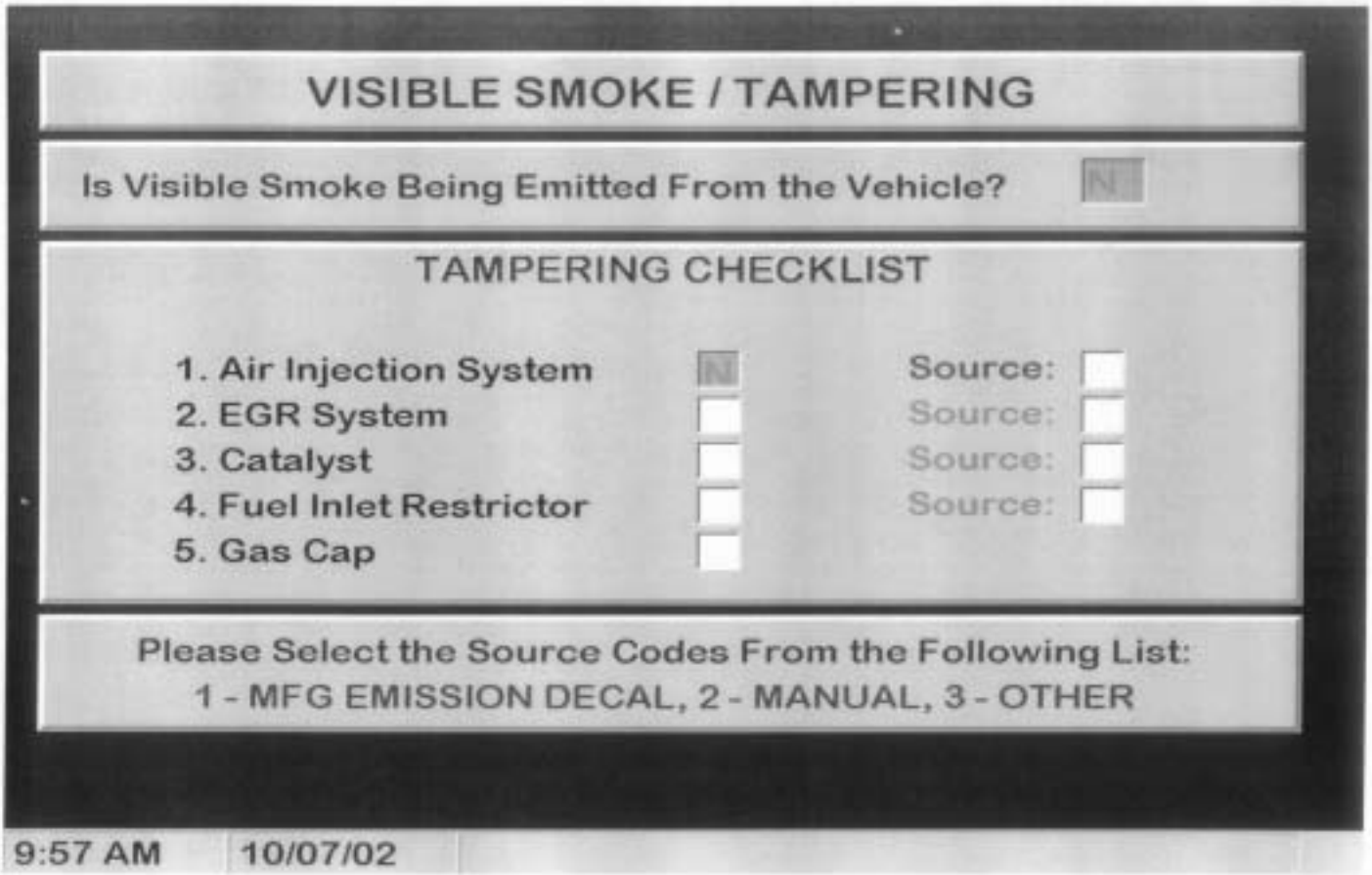
- If not click on No and continue.



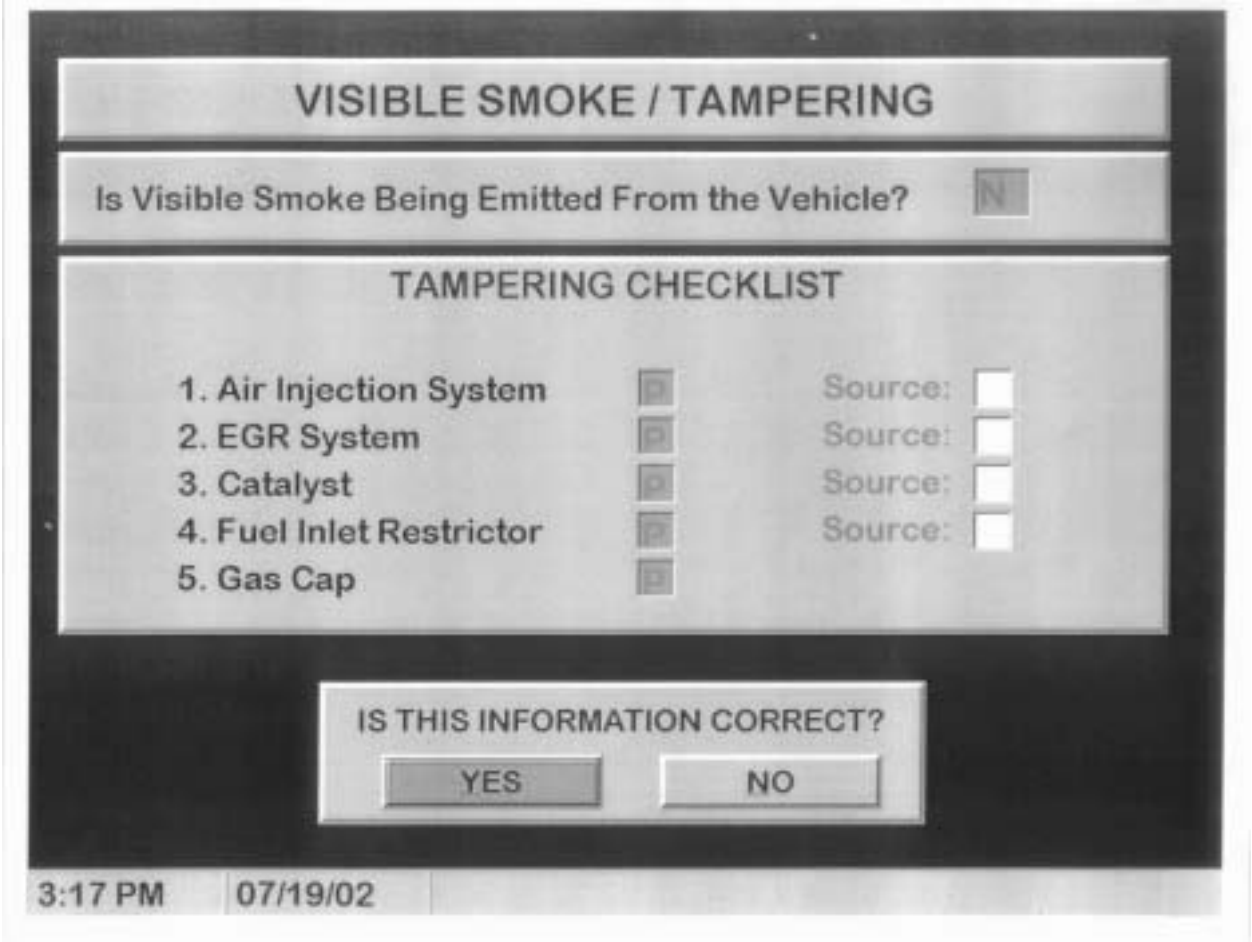
- Make sure the vehicle is idling between 350 rpm & 1250 rpm.
- Be sure the tachometer signal is stable.
- During this portion of the test be sure to check for visible smoke.
- Check for smoke coming from the tailpipe and the engine area.
- Only smoke coming from the tailpipe or the crankcase will cause a failure.
- Smoke from an oil leak does not count as a failure.



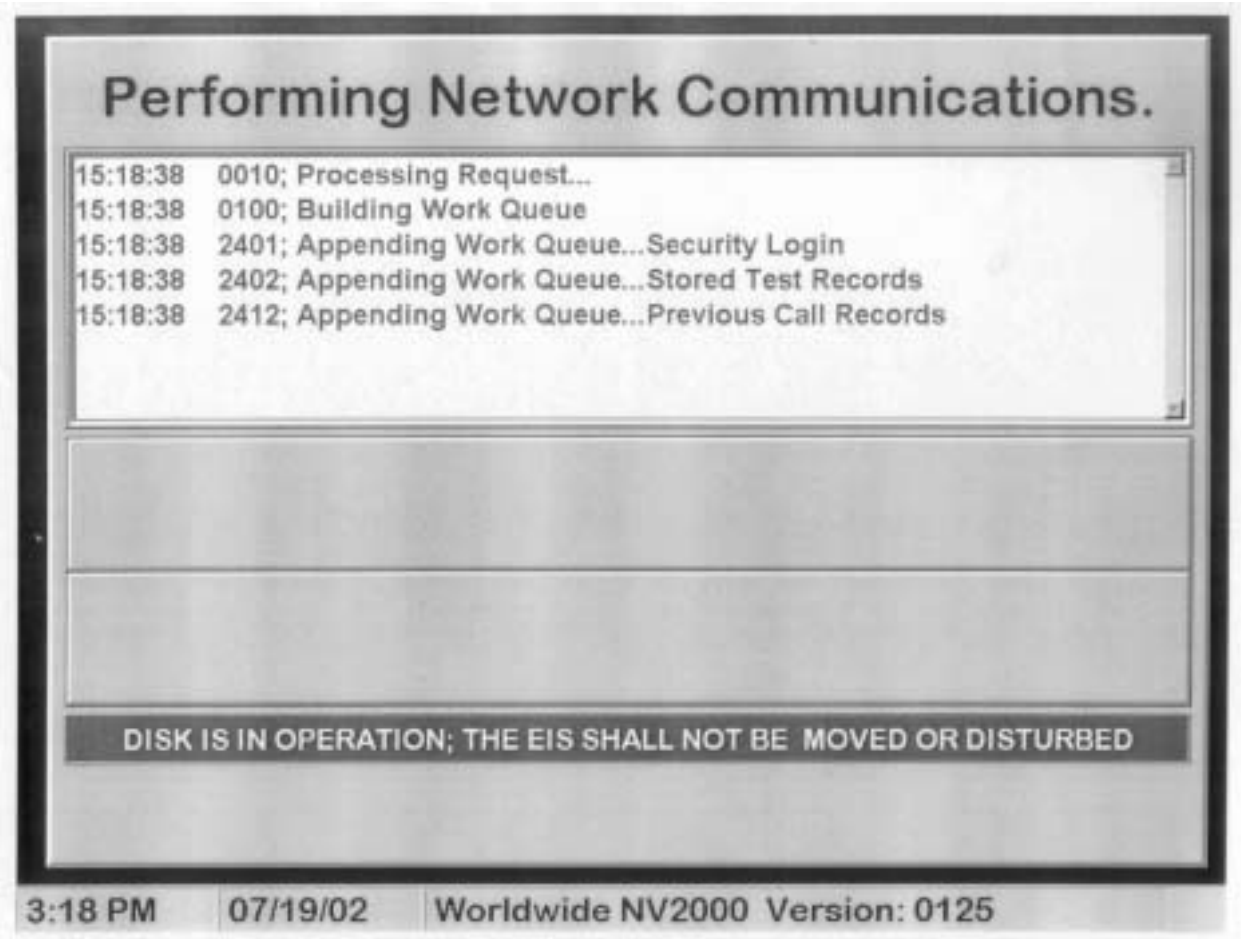
- The test is now complete.
- Turn off the engine.
- Remove test probe.
- Disconnect tachometer pick-up.
- Close the contact pick-up to prevent damage. Dropping the pick-up with the contact open may cause a broken ferrite magnet. A broken magnet may cause an erratic tachometer signal.
- Remove the wheel chocks.



- If the vehicle is smoking click yes.
- Yes will cause a test failure.
- If the vehicle is not smoking click no.
- Next enter pass, fail or N/A for each tamper device listed.
- If you enter N/A be sure to enter the source of your information.
- 1 – Manufacturers emission decal
- 2 – Reference manual
- 3 – Other (Electronic media for example)
- Note: You do not have to enter a source if you enter Pass or Fail for a device.



- You must confirm your entries.
- Clicking **YES** locks in all your information.
- Once **YES** has been entered you cannot correct a error.If an error was present,you must complete the test and then retest the vehicle at no charge to the customer.
- A **NO** entry will allow you to correct any errors you may have made on this screen.

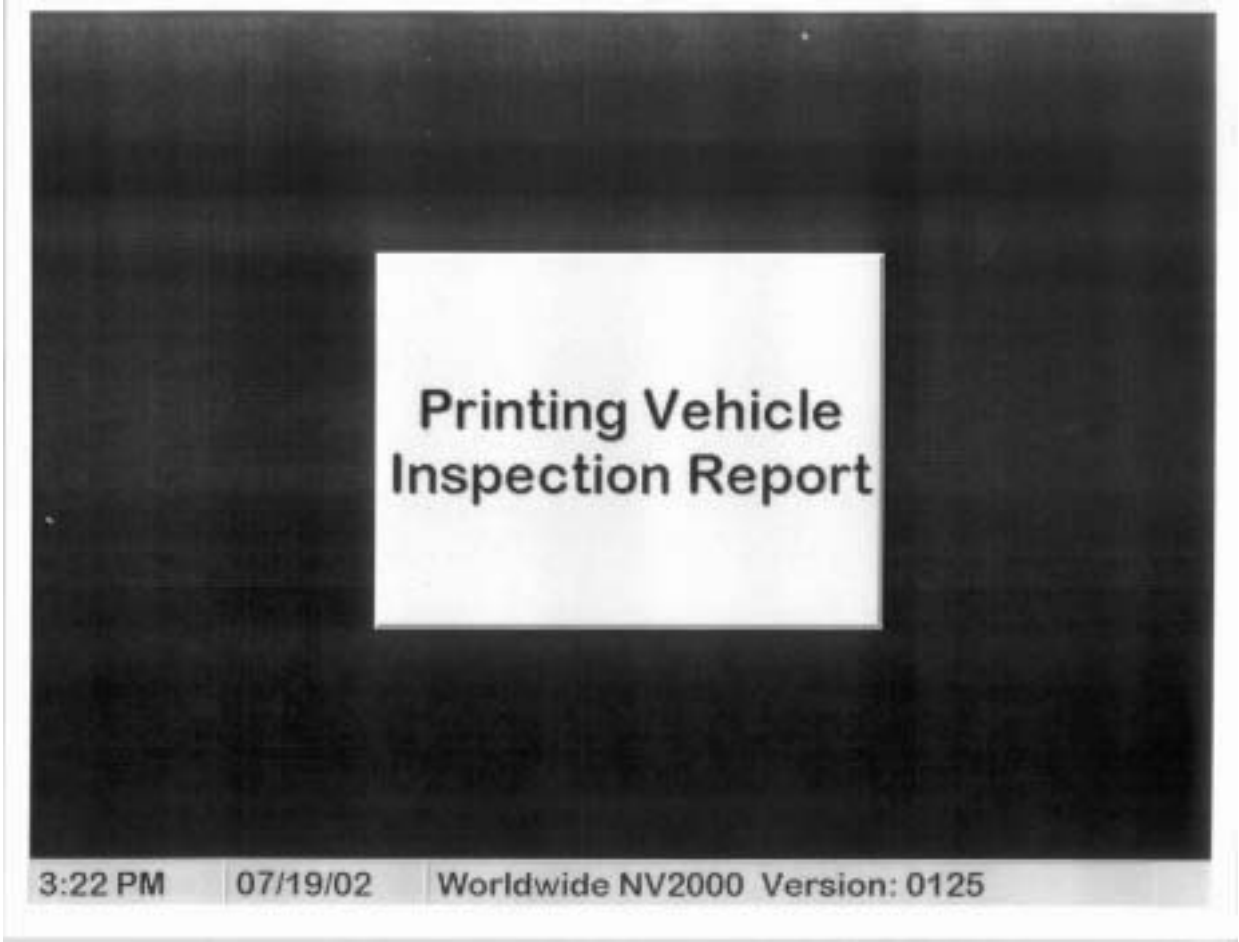


- The analyzer is now communicating with the (Vehicle Information Database)VID.

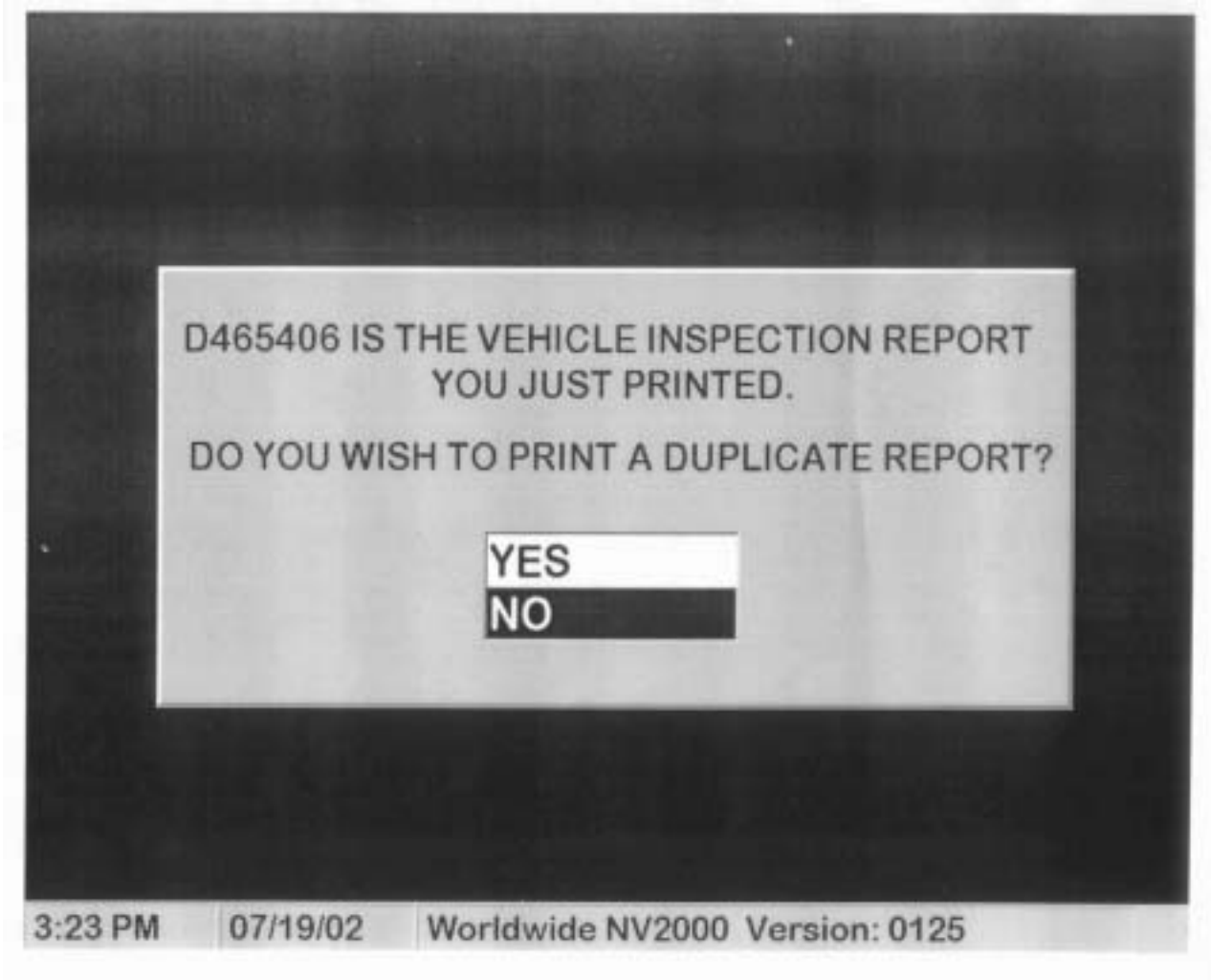
- The information you have just entered will now be downloaded to the VID.

- If the printer is ready click the yes box to print your VIR.

- If the printer is not ready (out of paper or cartridge is empty) click on the no box.



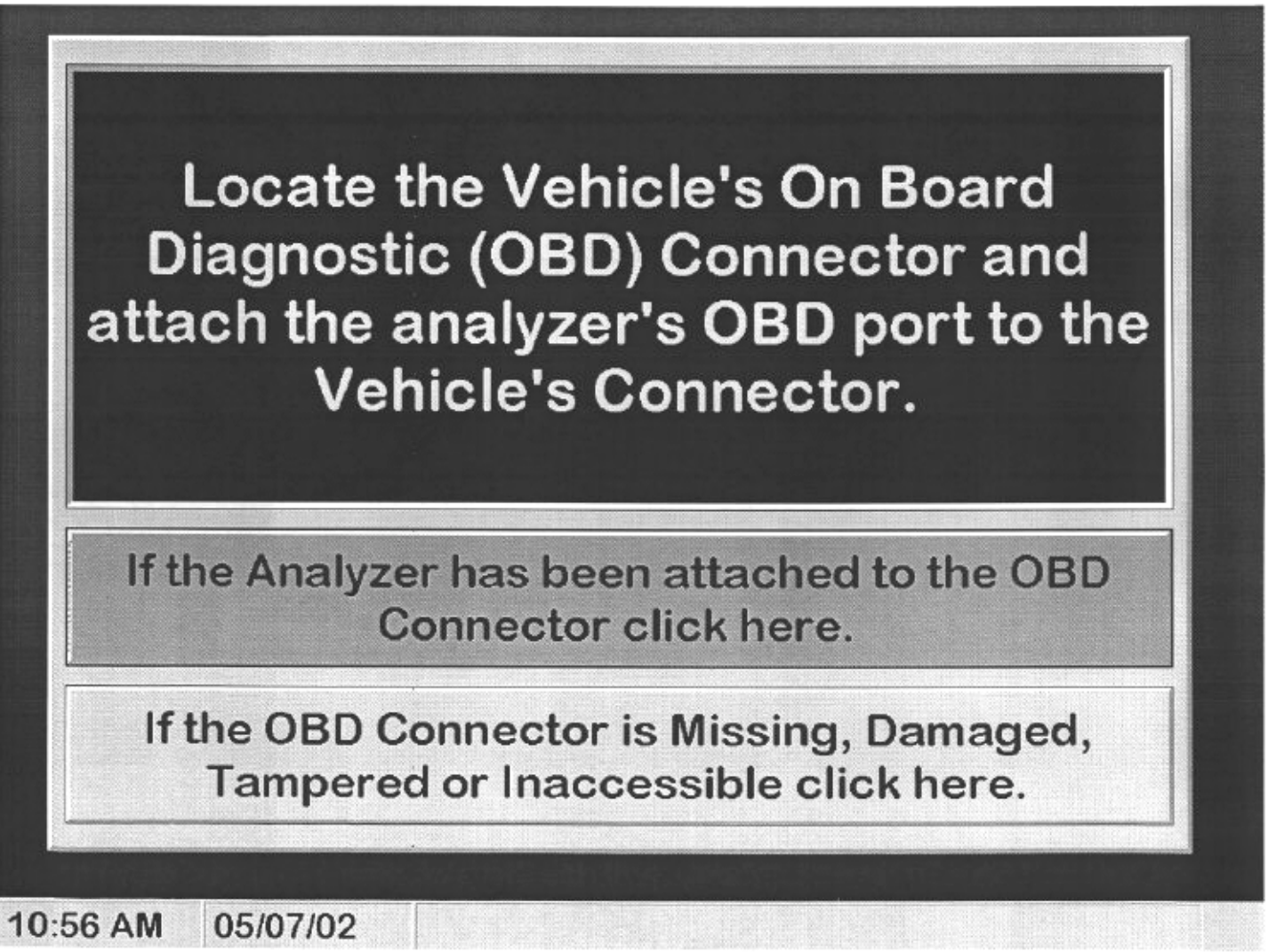
- The analyzer is now printing your Vehicle Inspection Report (VIR).
- Remember to check the VIR for errors. Any error creates an invalid VIR.
- The test must be done again at no charge to the customer.



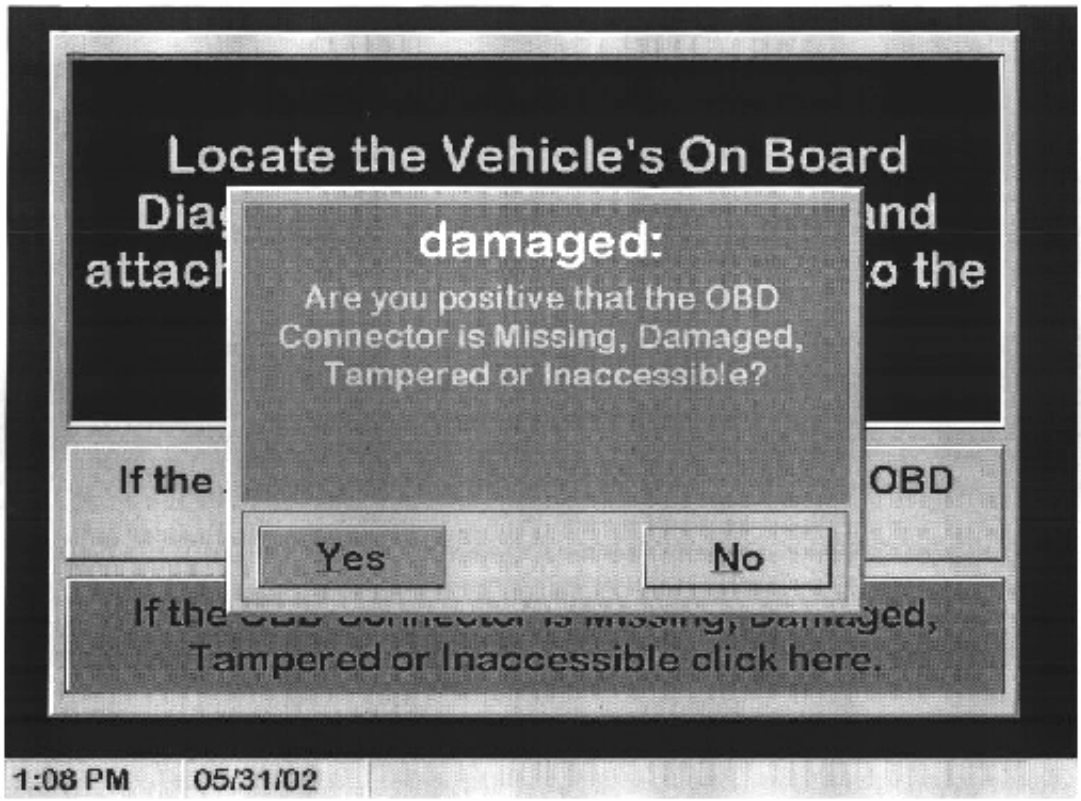
- If you want to print another VIR for your records or for the customer click the yes box.

- If you do not need another VIR click no.

INTRODUCTION to OBD II TESTING



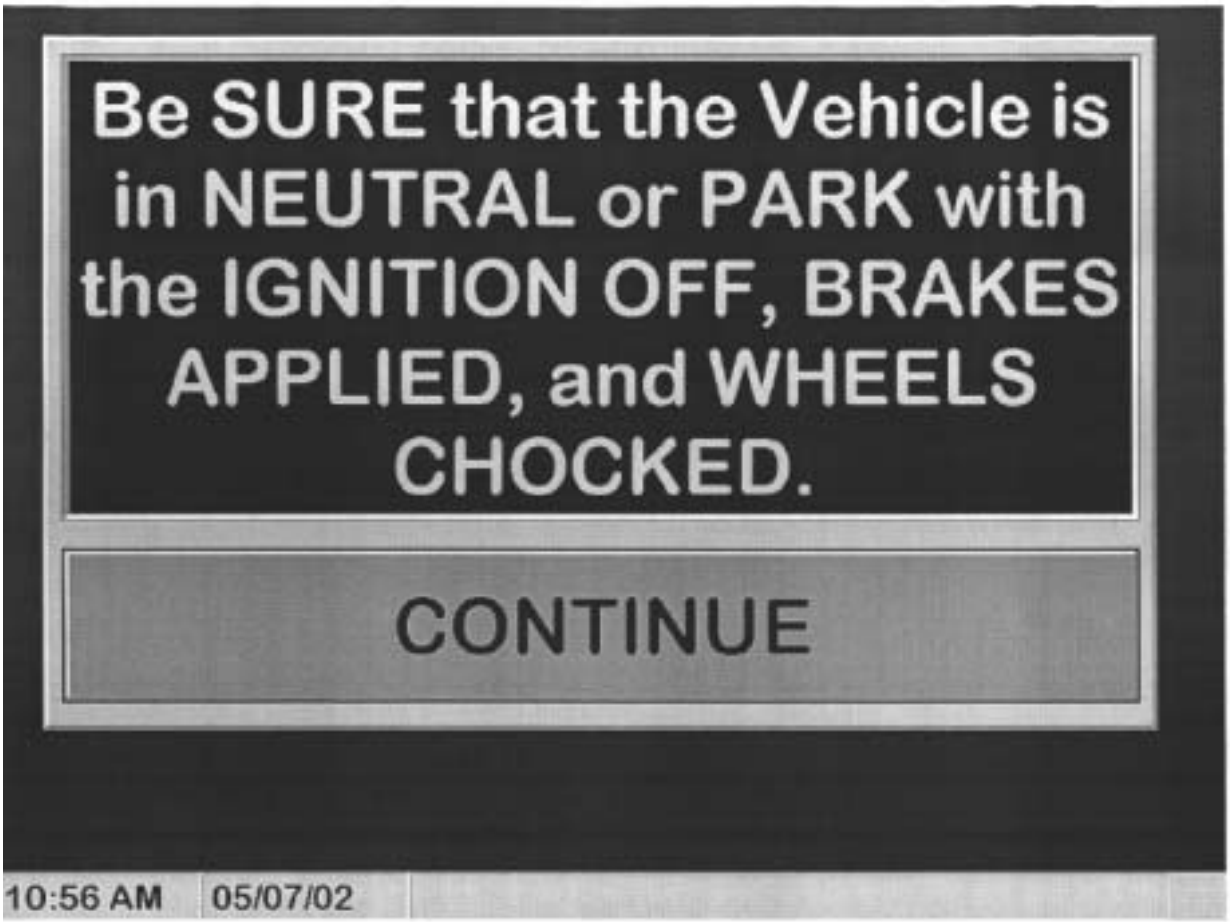
- Using a connector reference guide locate the OBD II connector.
- Connect the analyzer OBD II plug to the vehicle OBD II connector.
- If the connector is missing or damaged click on the missing or damaged connector box.



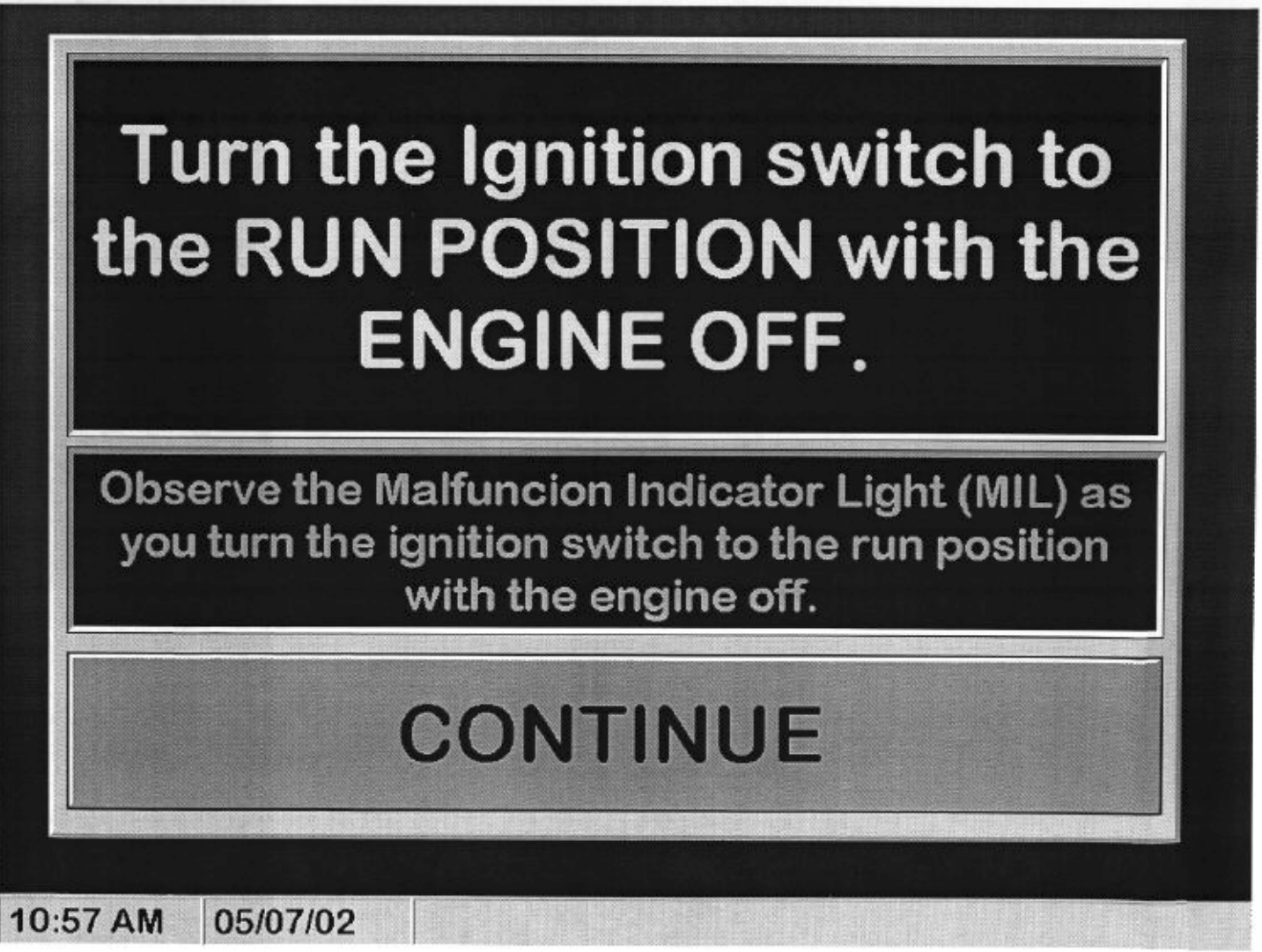
- If you entered that the OBD II connector was damaged on the previous screen the machine will now prompt you to confirm that entry.

WARNING

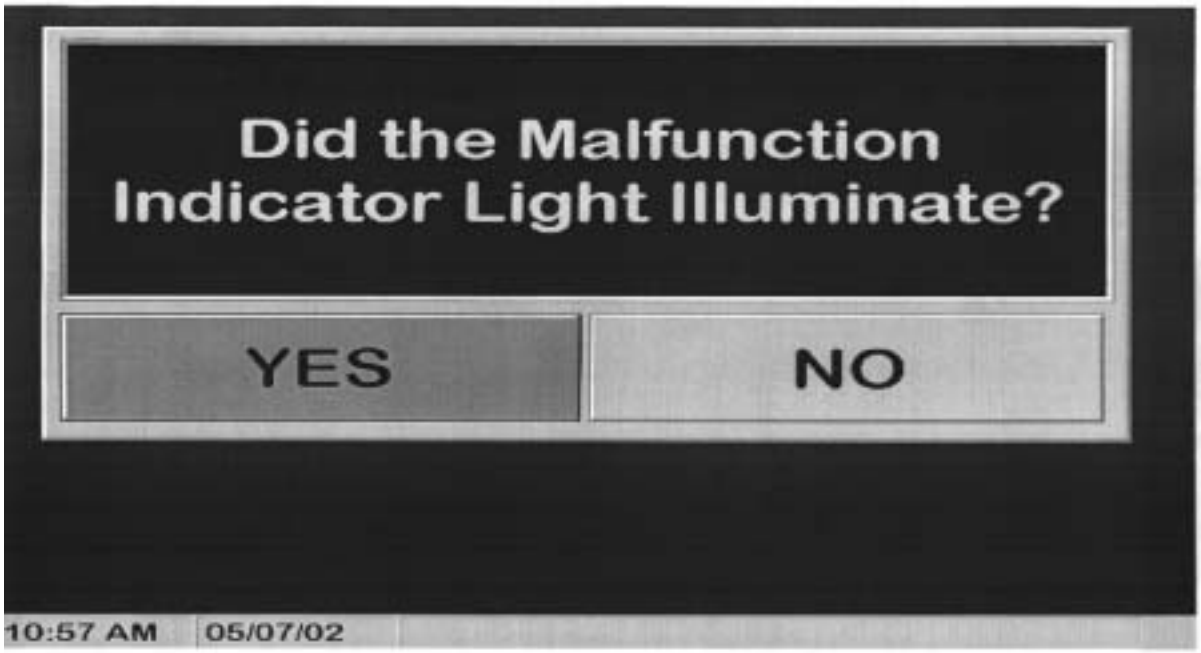
- If non-factory wiring is present at the OBD-II DLC **Do not connect to the analyzer or damage may result!**
- **Refer the vehicle to the Emission Lab or factory dealership.**



- SAFETY! SAFETY! SAFETY!
- Be sure to place the vehicle in neutral apply the brake, turn the vehicle off and chock the wheels!

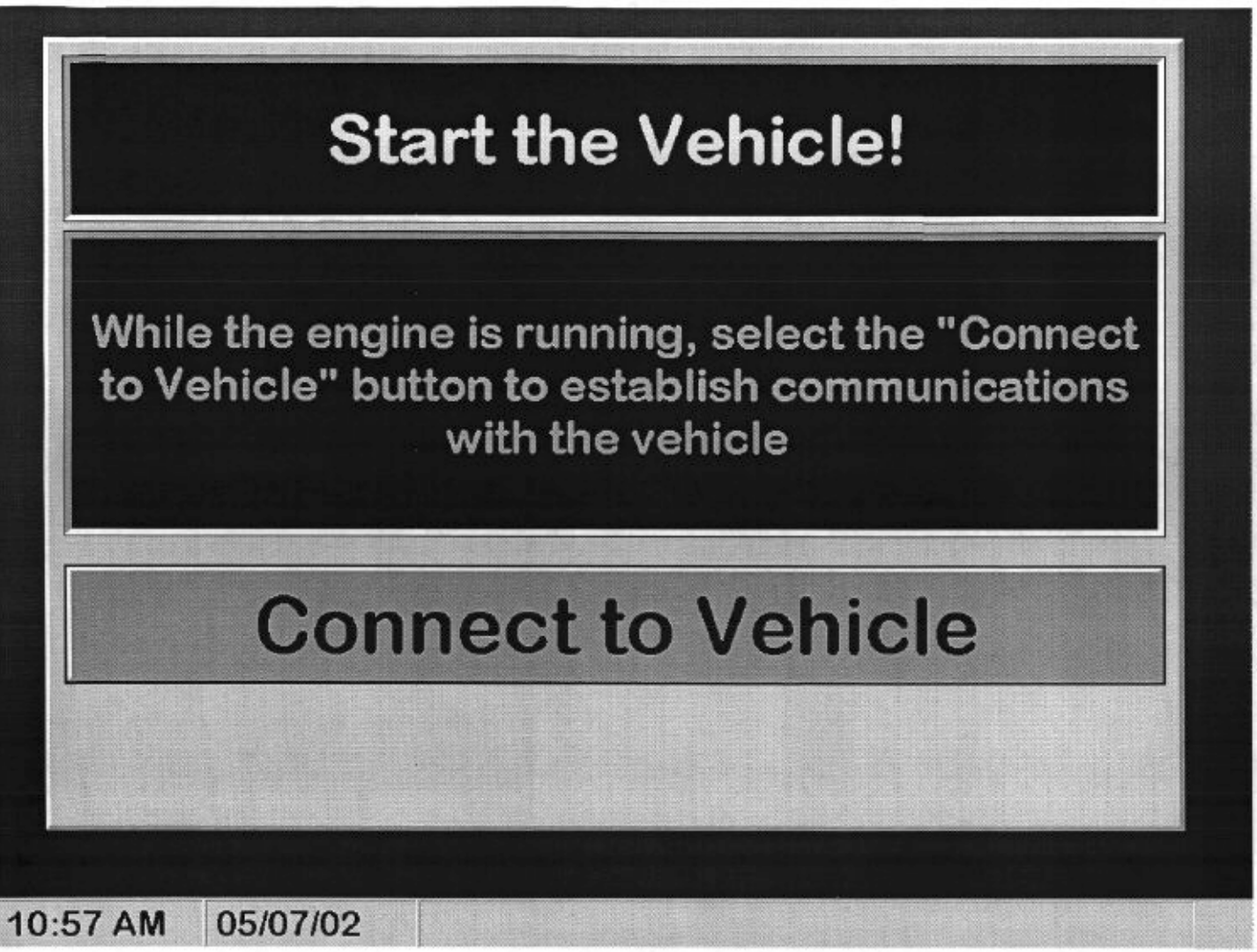


- First wait 12 seconds with ignition off
- Turn the ignition to the key on engine off position.
- Observe the Malfunction Indicator Lamp. (MIL)

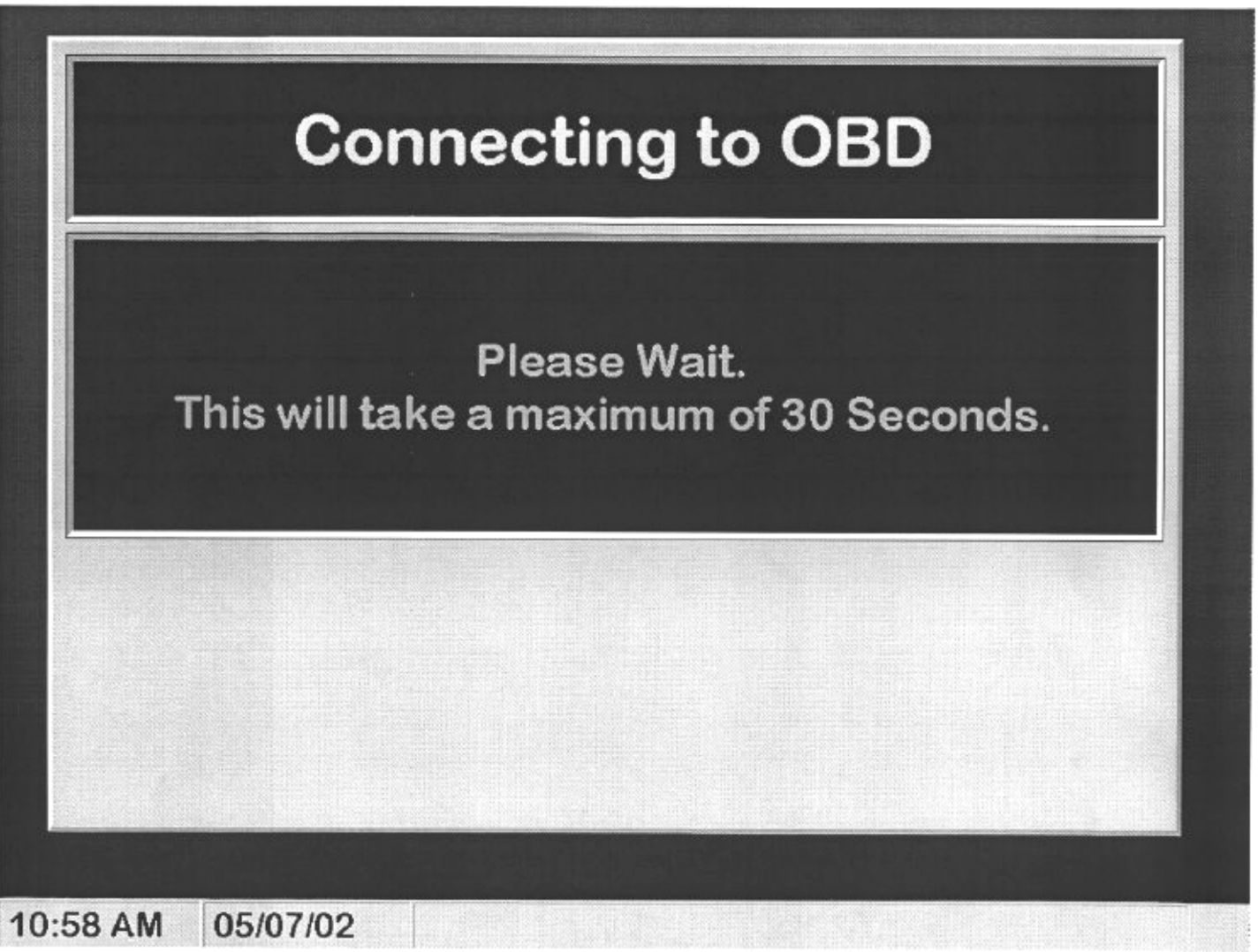


Three Examples of the MIL

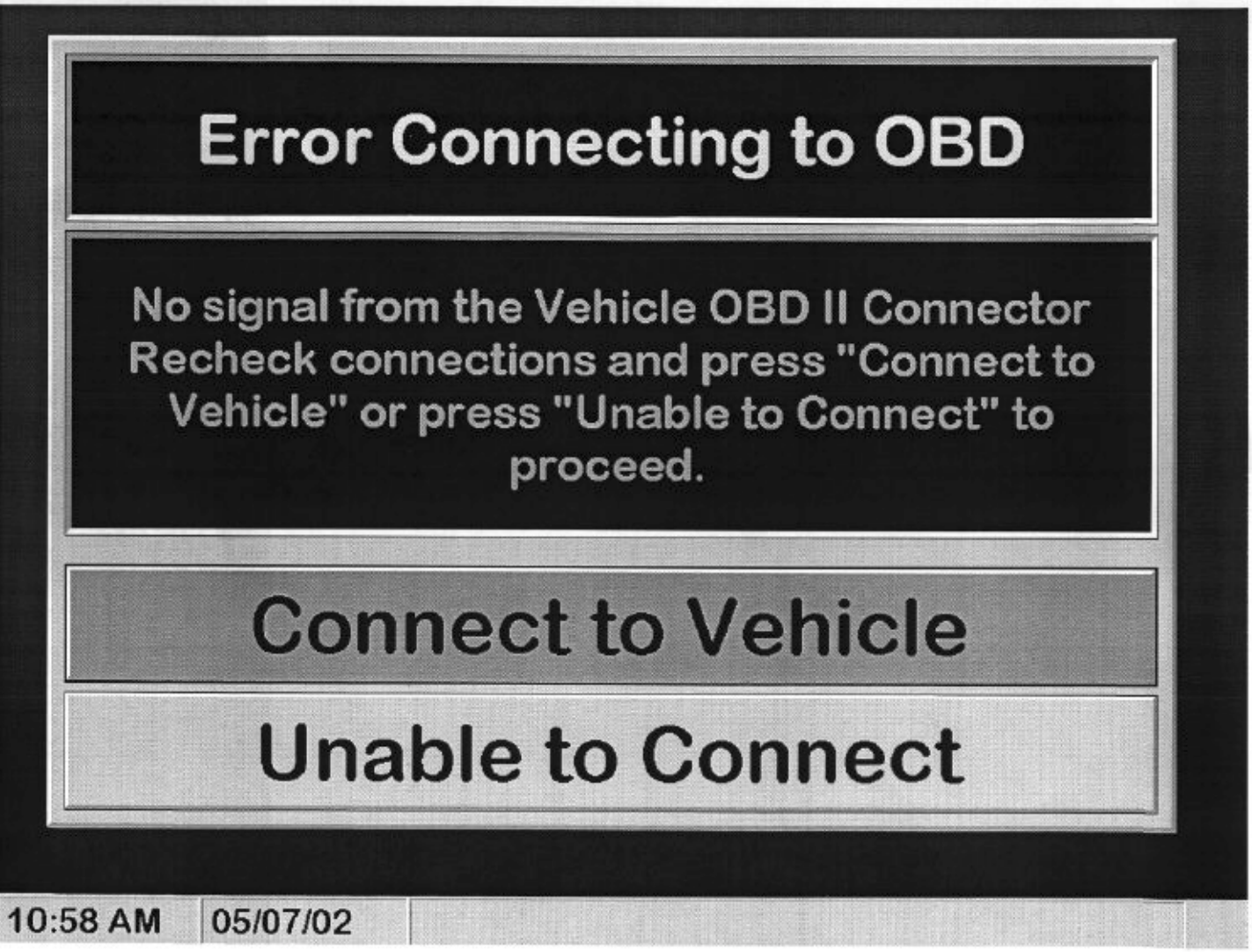
- Did the MIL come on or blink for any amount of time? Even a slight blink counts.
- If it came on or blinked click YES.
- If it did not come on or blink click NO.



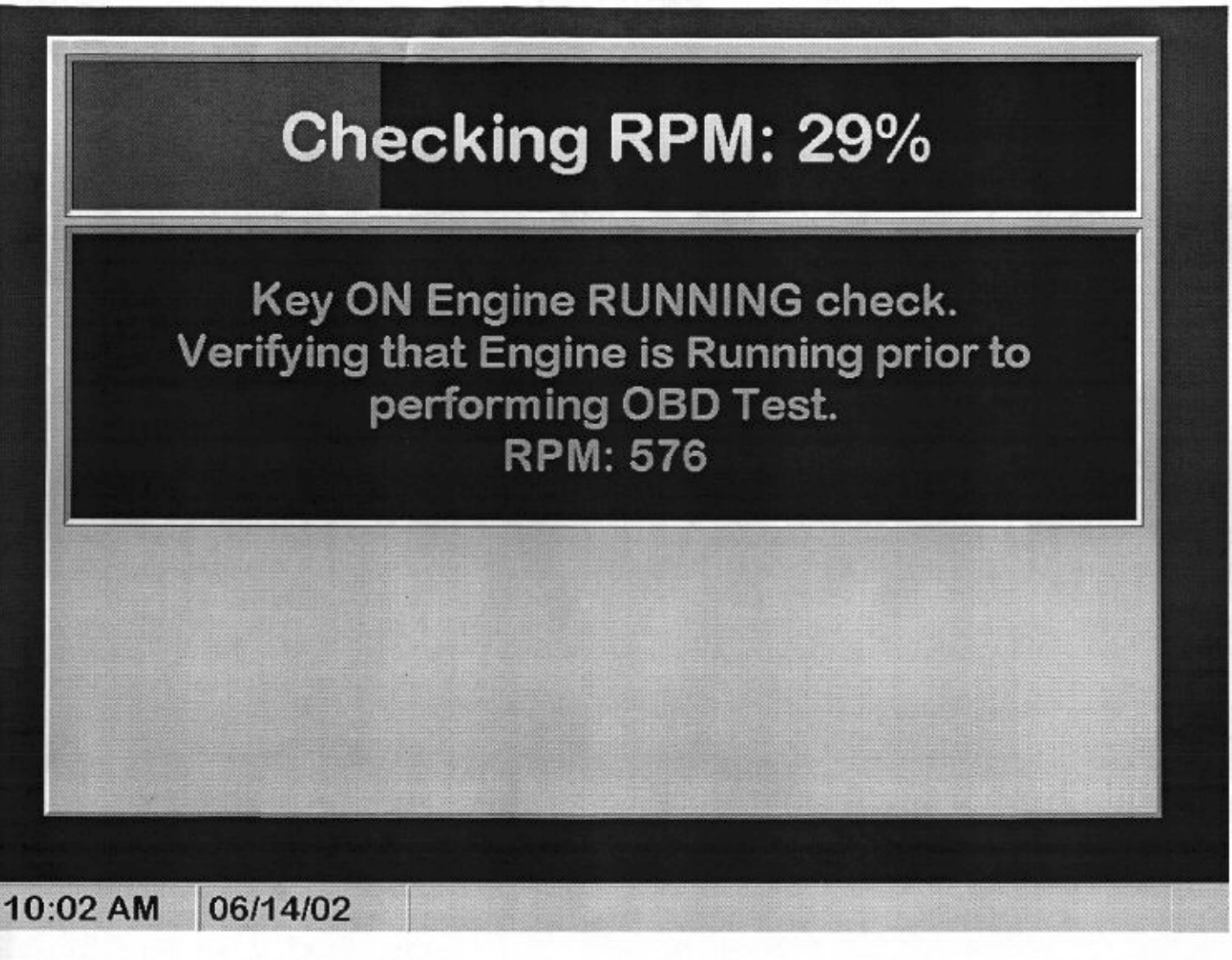
- START THE ENGINE
- Click on the connect to vehicle box.



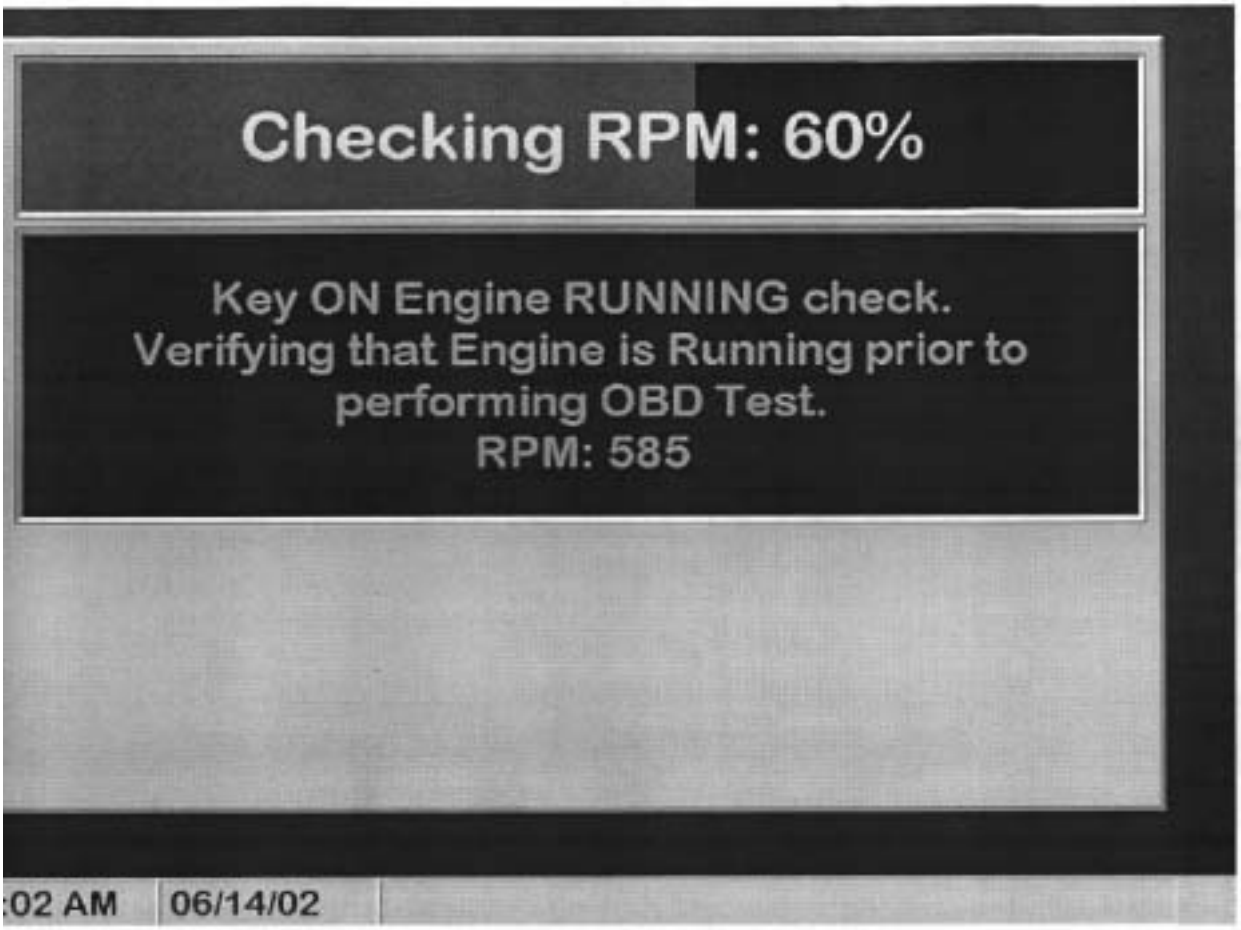
- The analyzer will now advise you to wait while communication is being established.



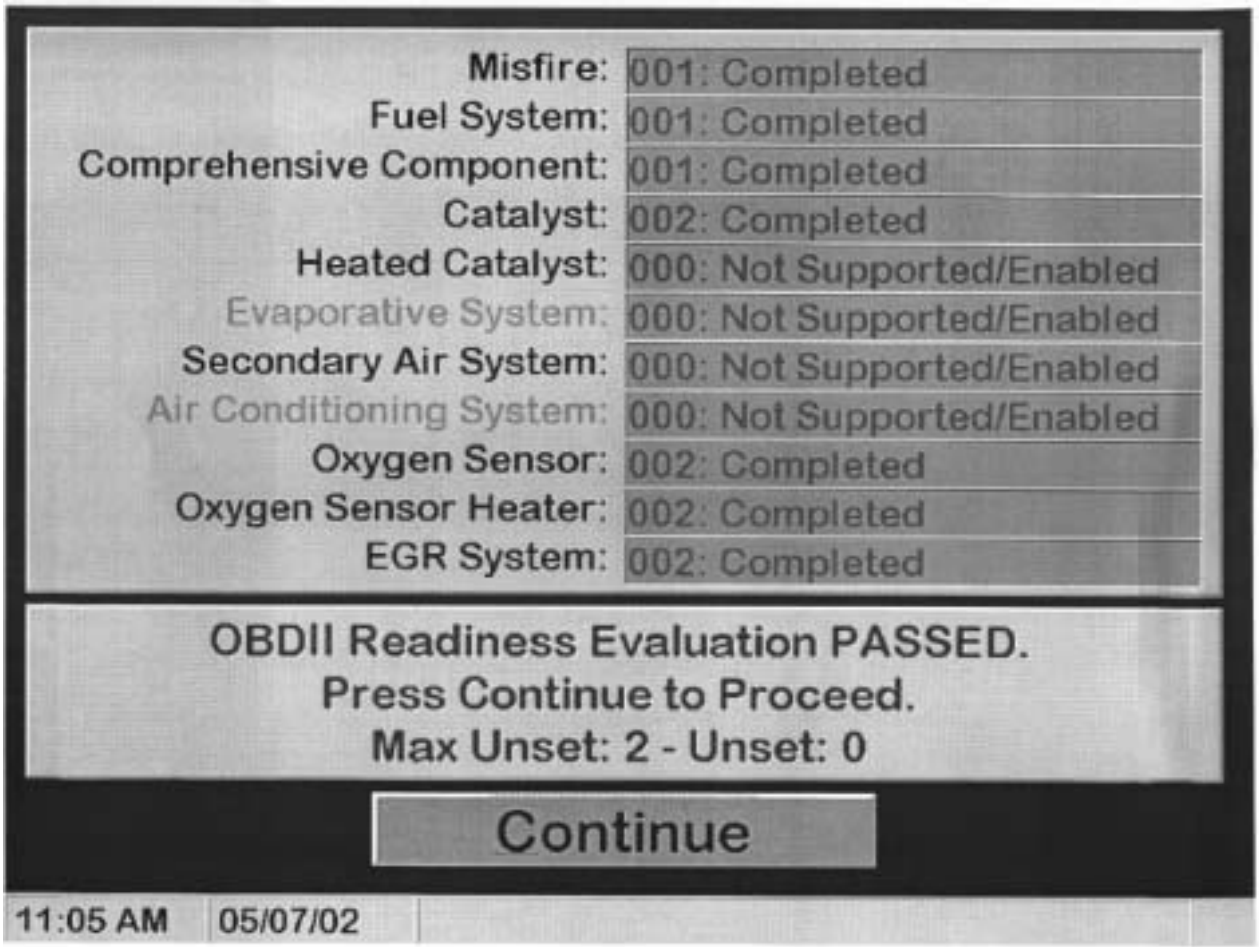
- If an ERROR CONNECTING TO OBD comes up on the screen check connections at the OBD connector.
- Try connecting again. If the vehicle still will not communicate try pushing the OBD II reset button on the back of the analyzer.
- If no communication can be established click on the unable to connect box.



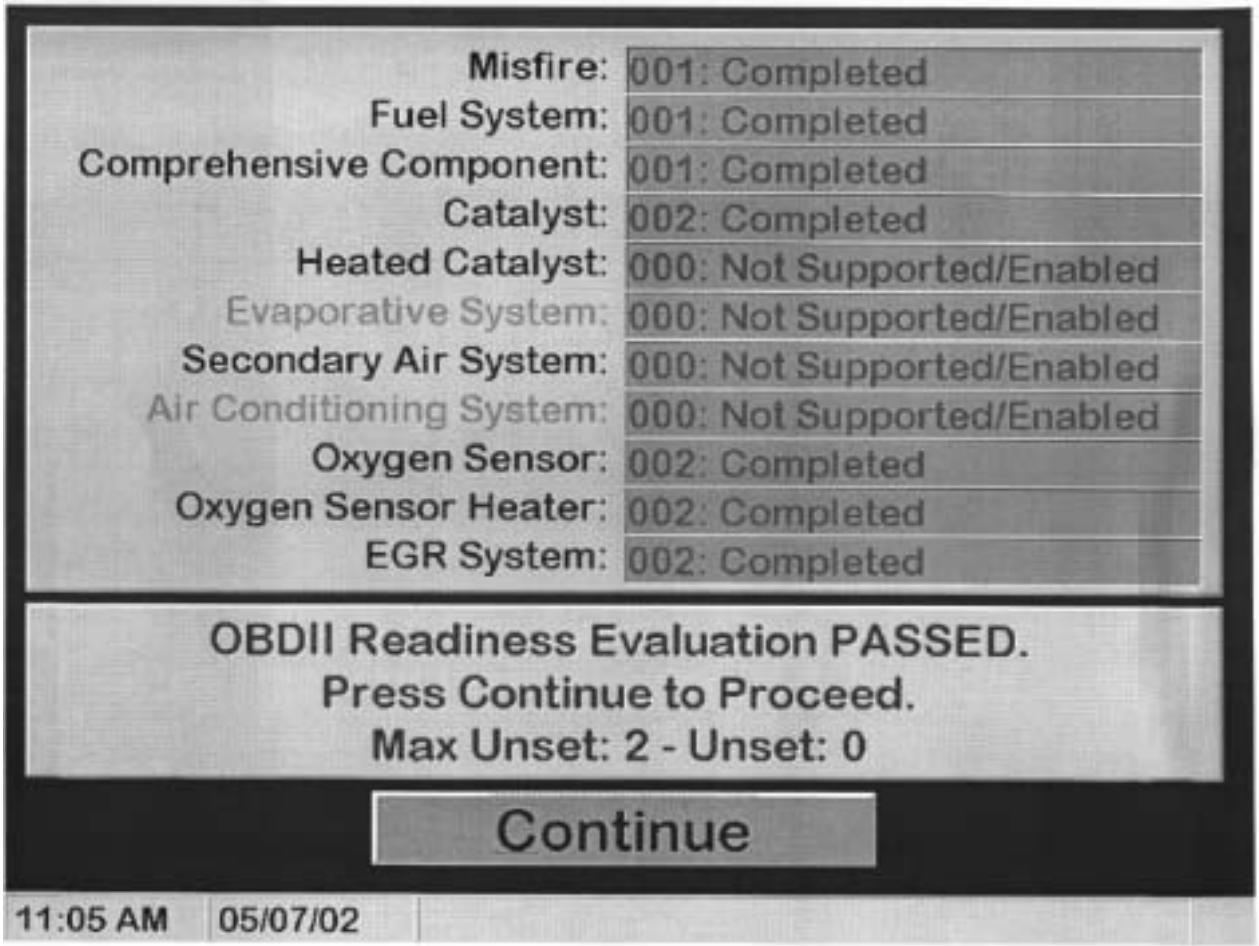
- The analyzer will now verify the engine is running.



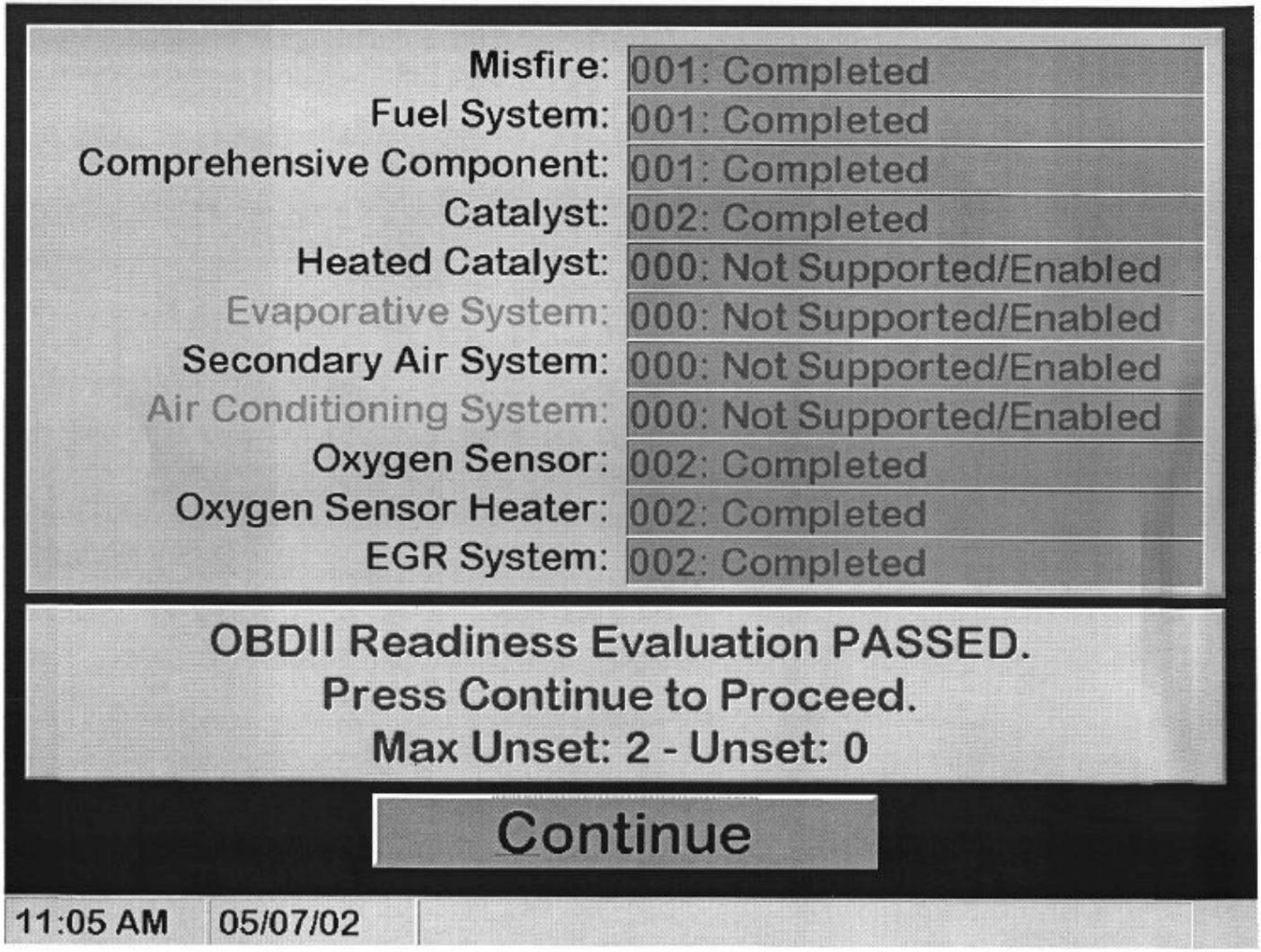
- The RPM bar must reach 100% before the test can continue.



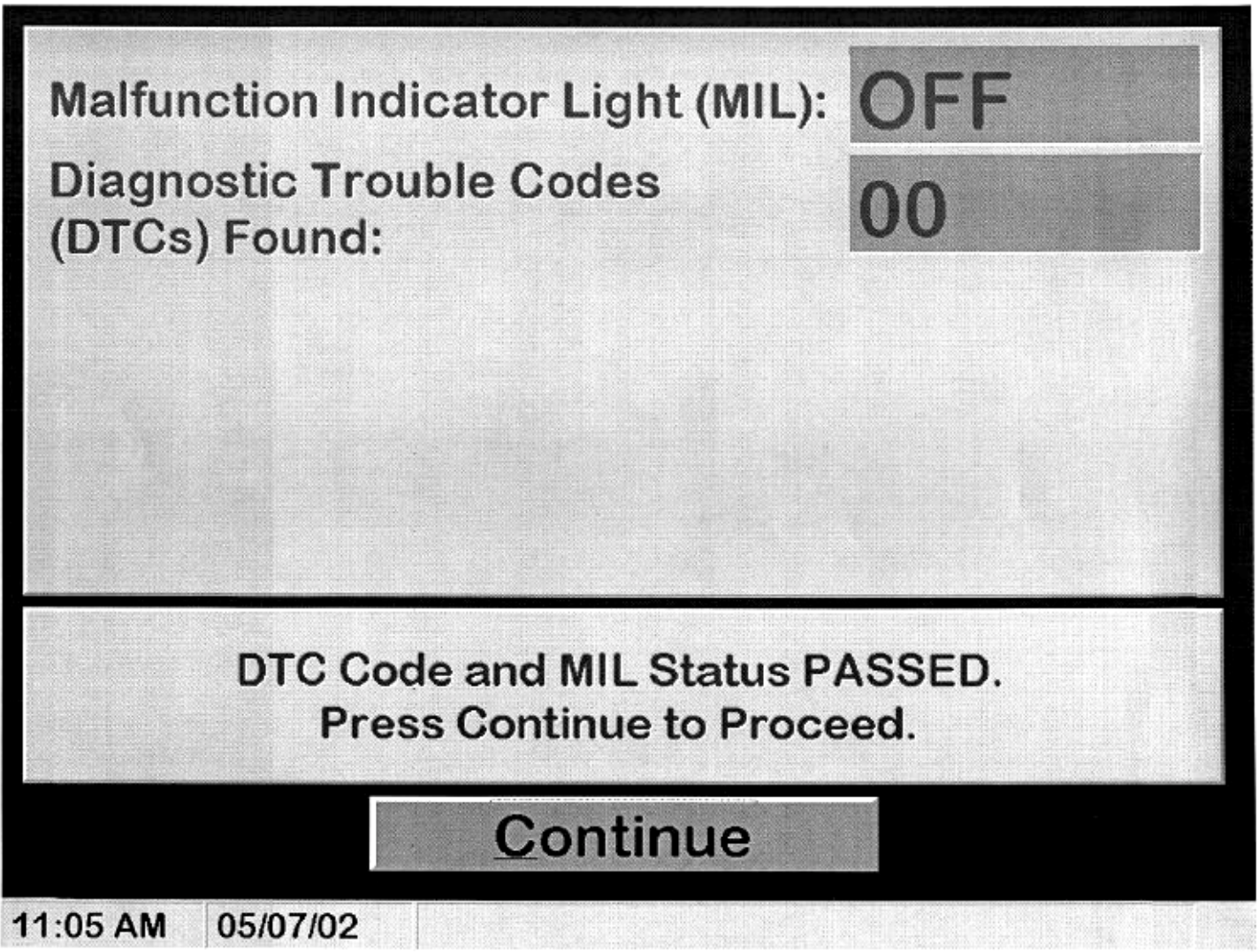
- Next the OBD II readiness screen is displayed. It shows the maximum number of readiness codes that are allowed to be unset and displays the number that are actually unset.
- If the maximum number of unset codes allowed is two and the number of unset codes is zero the vehicle passes.



- If the maximum number of unset readiness codes allowed is two and the number of unset readiness codes stored in the PCM is four the vehicle must be returned to the customer and driven for three to seven days to allow the on board computer to run the readiness codes to completion.

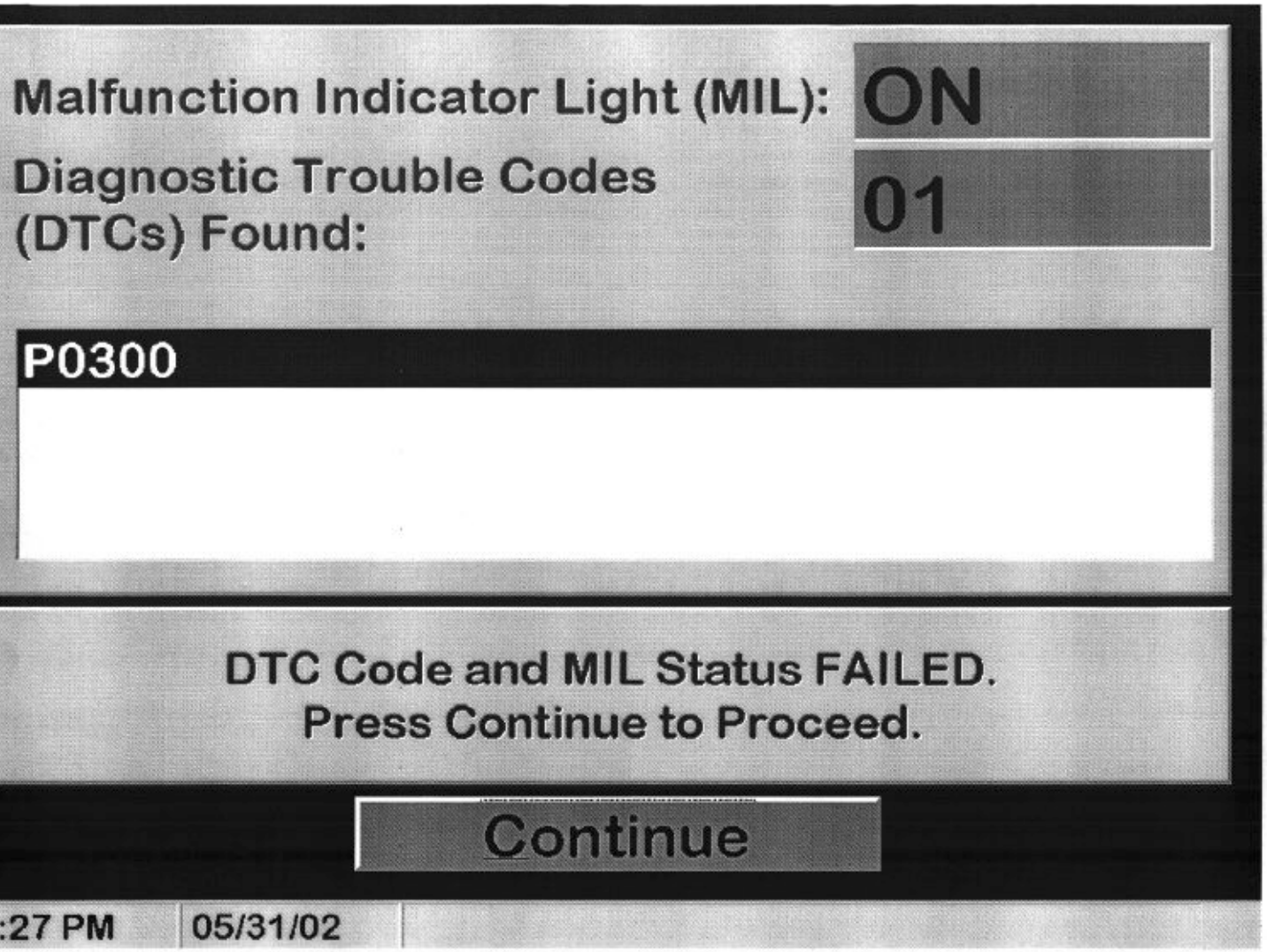


- The vehicle must then be retested. If the readiness codes still have not run send the vehicle in for repair.

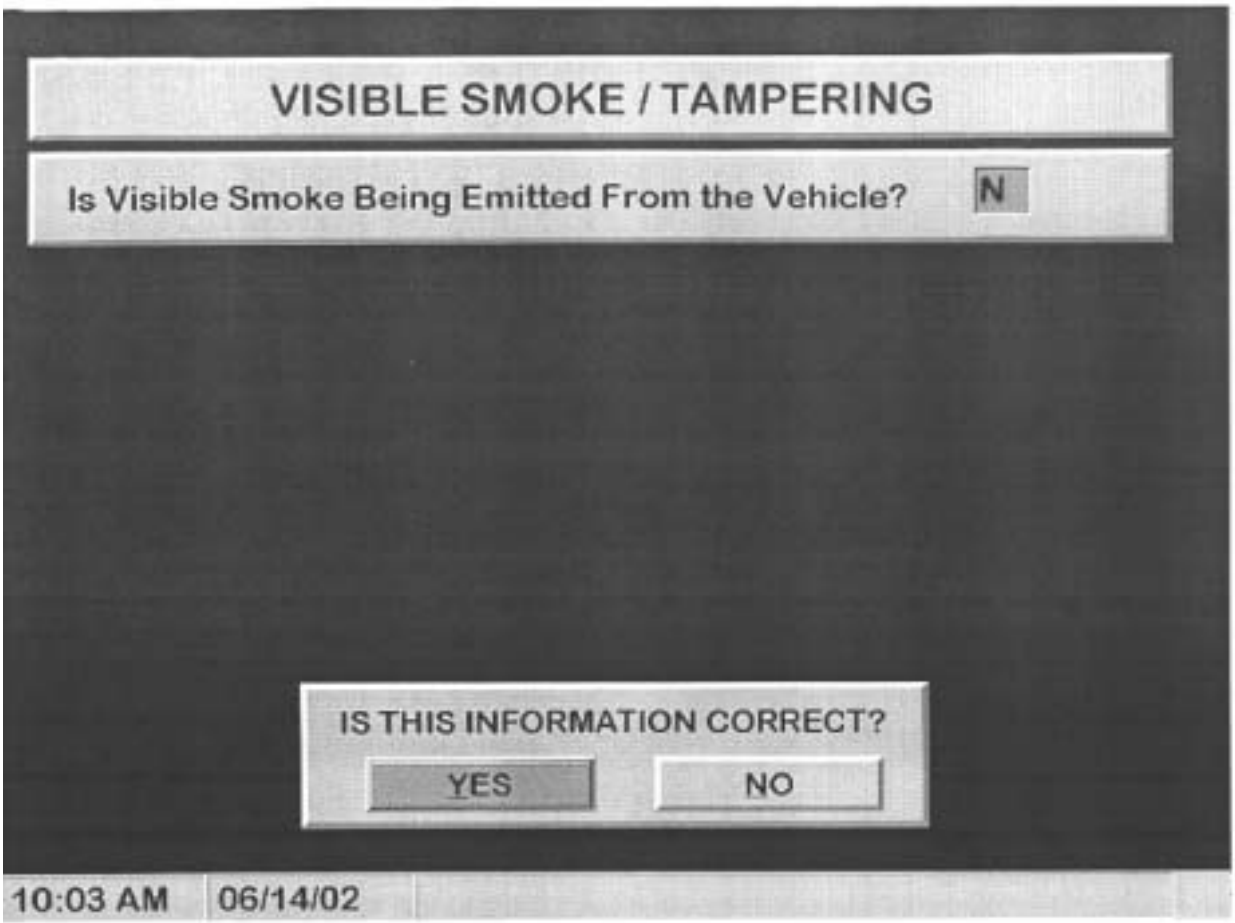


The Malfunction Indicator Lamp (MIL) indicates the MIL status.

1) ON= Vehicle Will Fail The Test.
2) OFF= Vehicle May Pass The Test
3) Flashing= Vehicle Fails the Test and A Condition Exists That May Cause Catalyst Deterioration. (Service As Soon As Possible)



- The MIL Status is Displayed
- Any DTCs will be displayed
- These Codes Can Be Translated Using an OBD II Reference guide



- Was the vehicle smoking at any time during the test? If so enter y for yes or n for no. A yes entry will cause a test failure.

- The analyzer will now prompt you to print a VIR. Click yes.

NEVADA

VEHICLE INSPECTION REPORT (VIR)

OVERALL INSPECTION RESULTS: PASSED

VEHICLE INFORMATION DID NOT MATCH REGISTRATION RECORDS. THIS VEHICLE INSPECTION REPORT MUST BE PRESENTED FOR VEHICLE REGISTRATION.

BAR CODED VIN:

VEHICLE INFORMATION

*Year: 2000	*Cylinders: 04	County: Washoe
*Make: AC	Type: Passenger	ZIP: 89433
*Plate No: 591LBS	GVWR: N/A	Odometer: 12345
VIN: 1FTEX15Y4KKB30490	Fuel: Gasoline	Inspection Type: Initial Inspection

ON BOARD DIAGNOSTIC SYSTEM **OBD: PASS** **VISIBLE SMOKE: PASS**

Malfunction Indicator Light: OFF

The following monitors were not ready: 0

- Check your VIR for accuracy. If you find you have made any errors you must retest the vehicle at no charge to the customer.Do not send the customer to the DMV with a invalid VIR.

TAMPER RESULTS

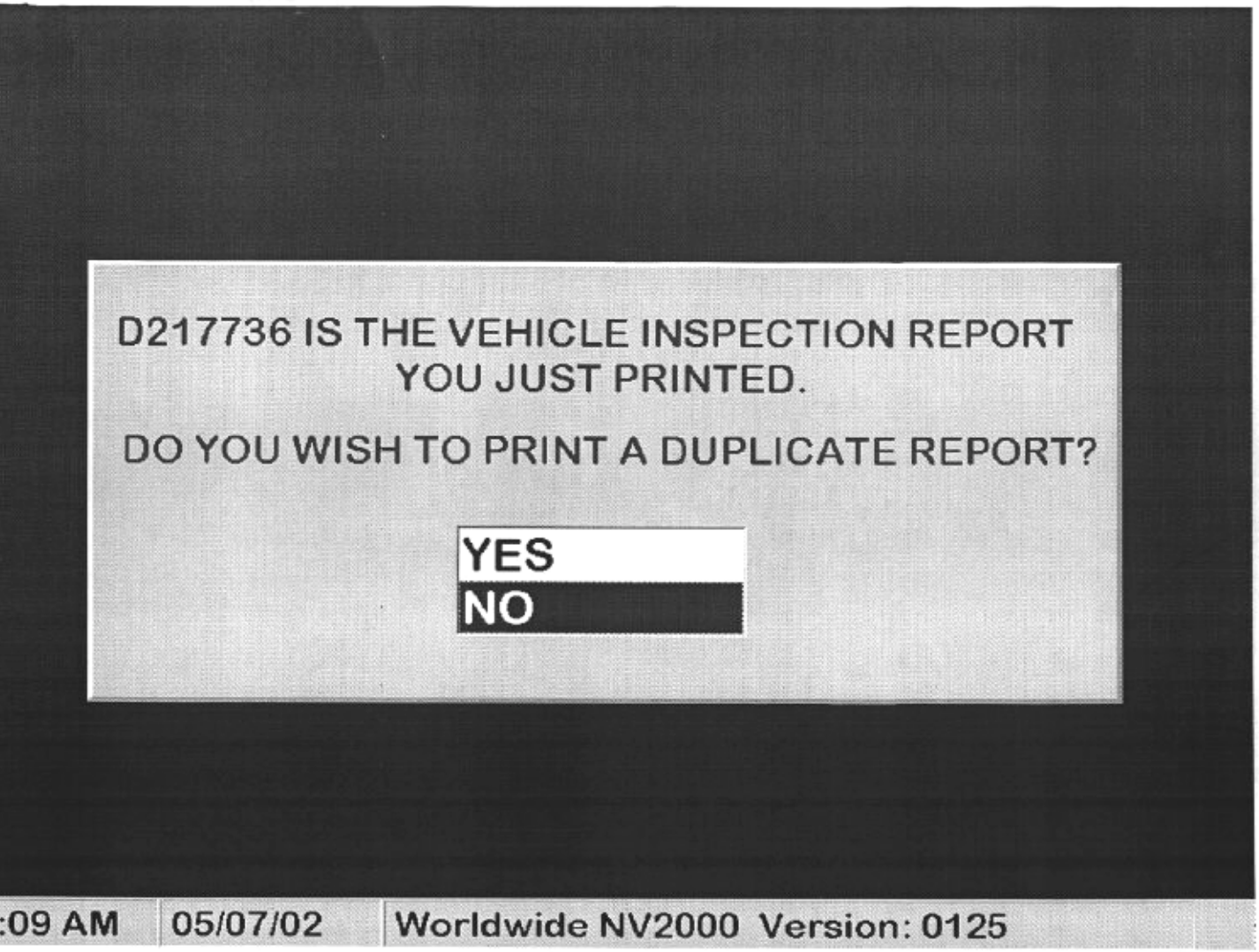
Air Inj. System	EGR System	Catalyst	Fuel Inlet Restrictor	Gas Cap
N/A	N/A	N/A	N/A	N/A

TEST INFORMATION

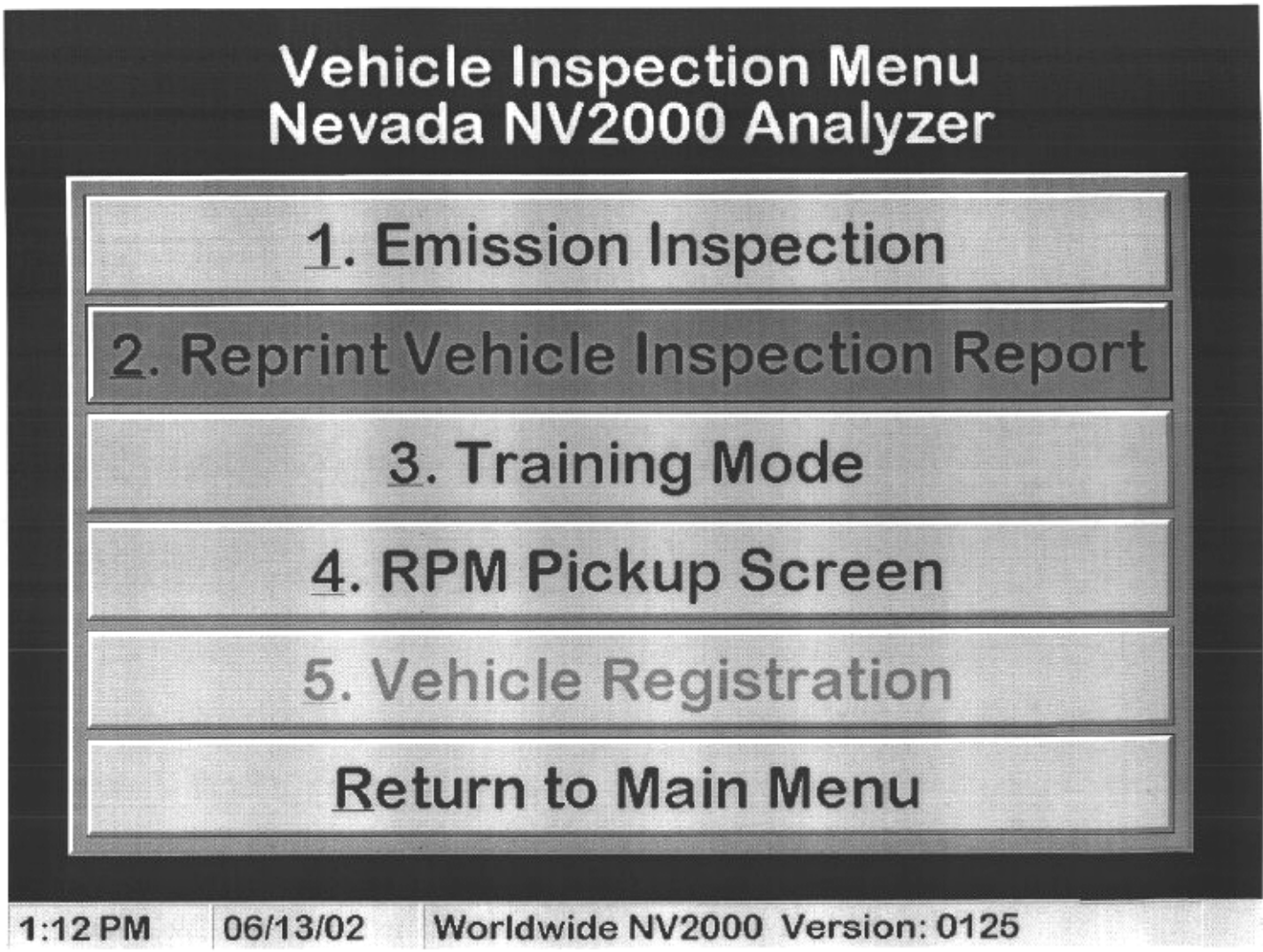
Station No: WEA060	Test Date: 05/07/02	DMV ID: 834977844630
Analyzer No: W701	Start Time: 10:54:03 AM	VIR No: D217736
Inspector No: I0045503	End Time: 11:06:37 AM	

VIR Certification Fee:	$ 05.00
Electronic Transmission Surcharge Fee:	$ 02.06
Inspection Fee:	$ 00.00
Total Fee:	$ 07.06

This Emission Test Valid For Registration Purposes For 90 Days Upon Date Of Issuance.



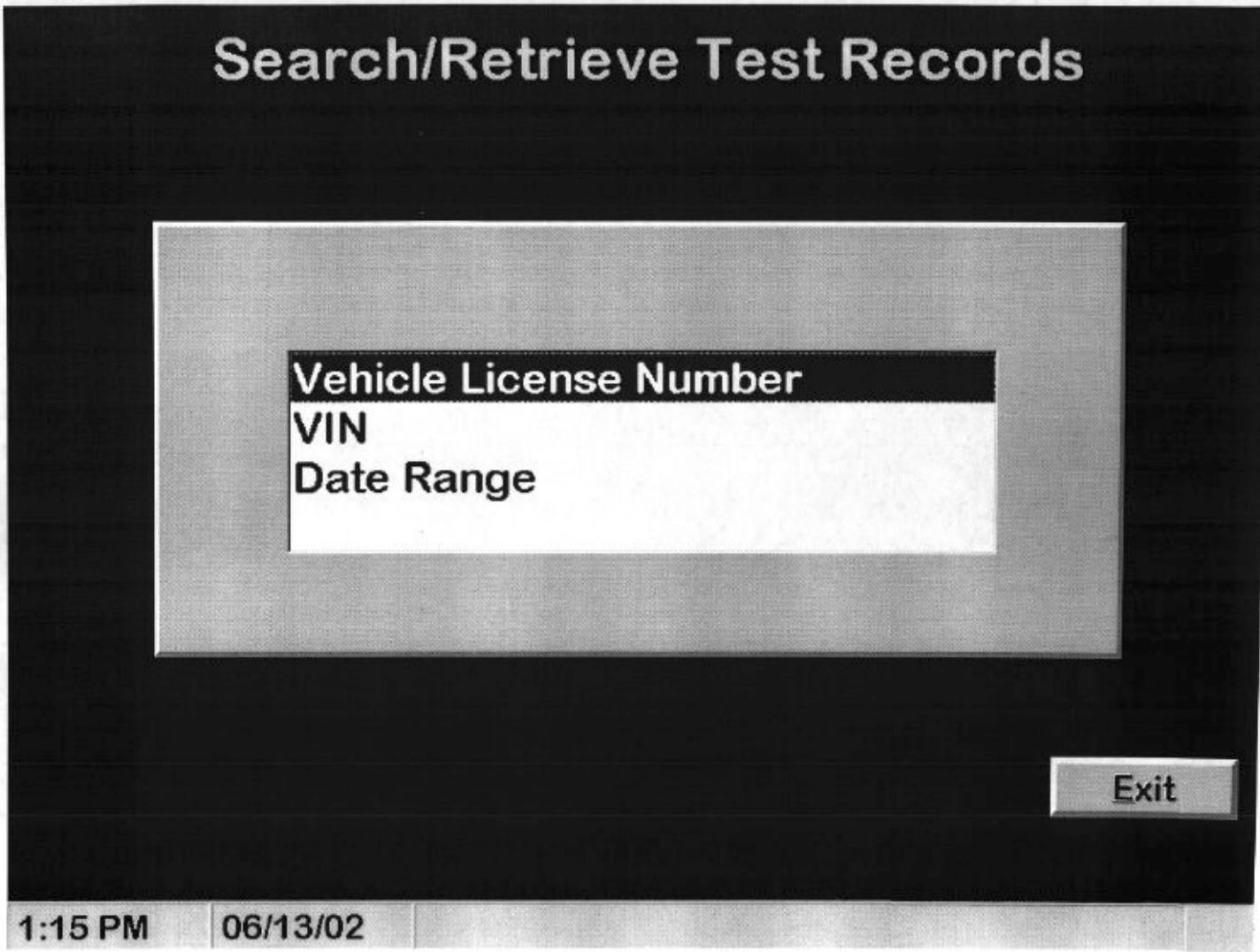
- You may wish to print additional VIR copies for your records or for your customers. Just click on yes. You have completed the OBD II inspection.



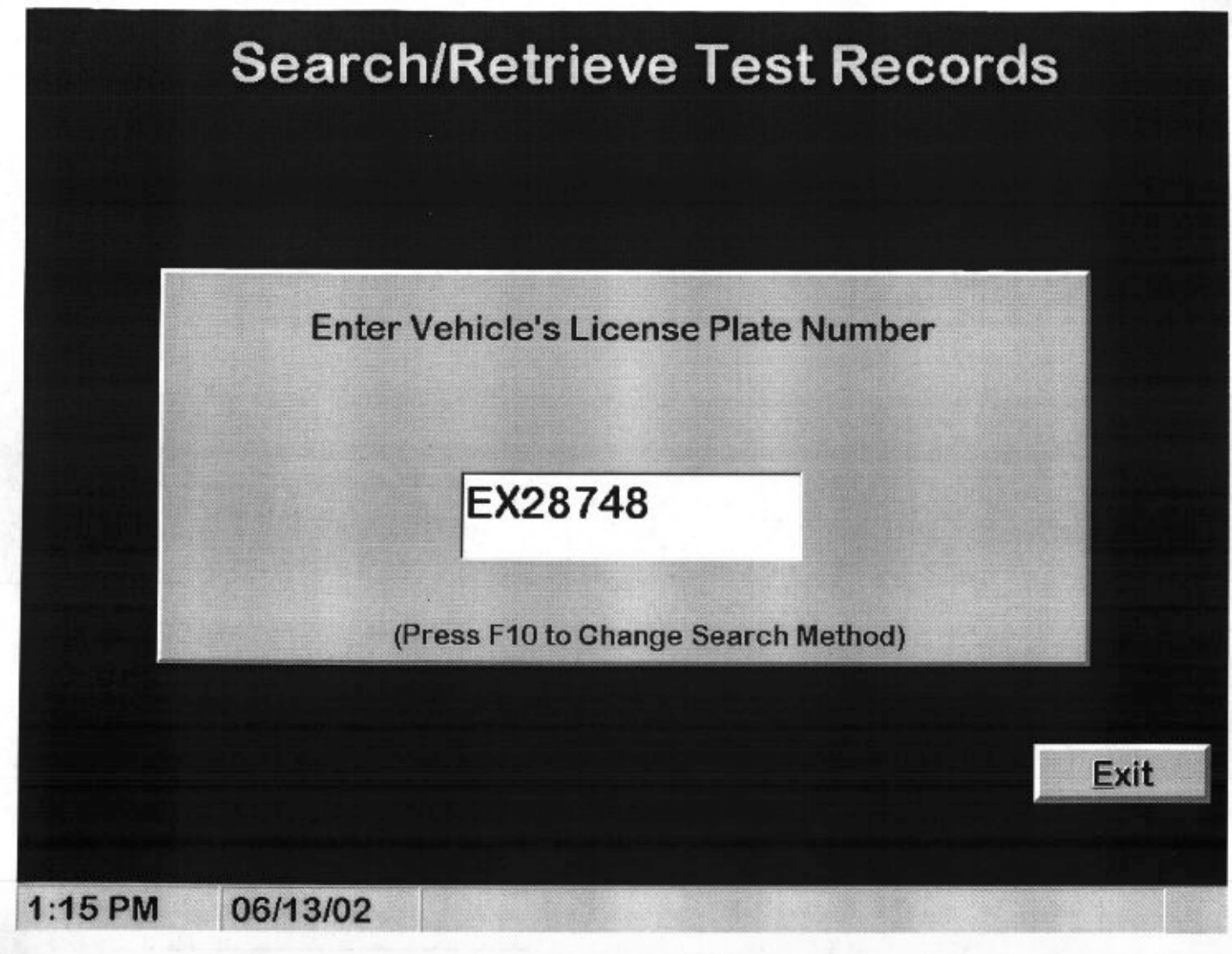
- If a customer has lost a VIR or you need a copy for your records you can do a reprint by:
- From main menu click on vehicle inspection.
- Click on Reprint Vehicle Inspection Report.

- Enter your inspector license number.

- Enter your inspector access code.



- Then you must choose your method of search.



- Enter license plate number , VIN number or date range to begin search.

Holder:	199
Version:	0119
Date of Test:	03/08/02
Test Start Time:	03/08/02
Test End Time:	03/08/02
Test Type:	I
Vir Message:	0
DMV ID Num:	334015891932
INSP Report Num:	D196539
Station License Num:	WEA000
Analyzer Num:	W700
INSP License Num:	1002729
CO Based:	OT
Modify County:	N
Zip Code:	89701
Modify Zip:	N
Model Year:	1999
Modify Model Year:	N
Vin:	1GCEK19T3XE14090
License Num:	008KRH
Modify Plate	Y

Plate Type:	1
Vehicle Type:	T
GVWR Type:	1
GVWR Actual:	6400
Make:	CHEV
Modify Make:	N
Cylinders:	8
Modify Cylinders:	N
Odometer:	12345
Fuel Type:	G
Modify Fuel:	N
Ignition:	D
Dual Exhaust	N
Air Injection:	
Visible Smoke:	
Temp_1:	
Temp_1 Source:	0
Temp_2:	
Temp_2 Source:	0
Temp_3:	
Temp_3 Source:	0

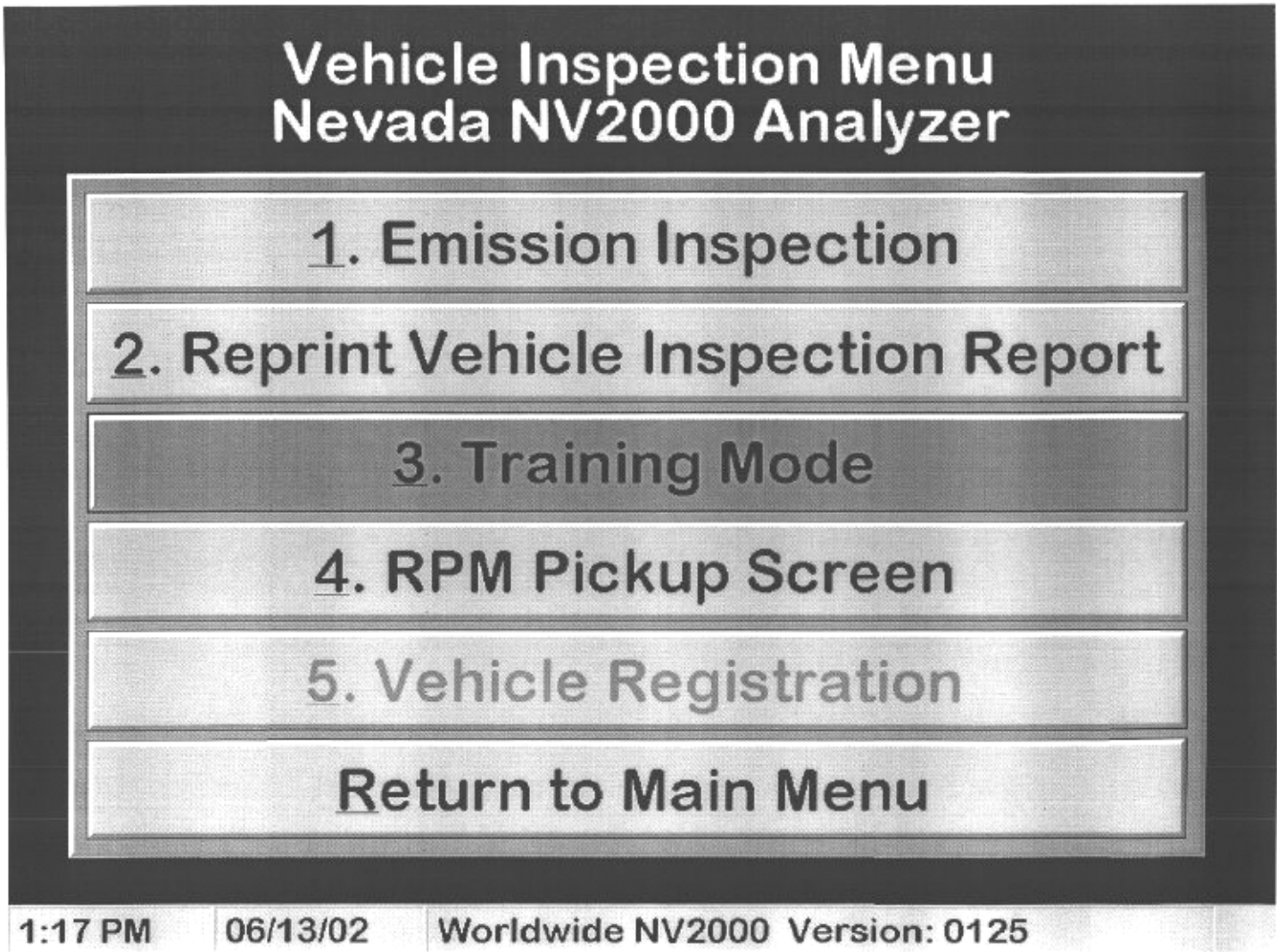
Temp_4:	
Temp_4 Source:	0
Temp_5:	
Temp_PF_Flag:	
Pre_Idle_CO:	0
Pre_Idle_HC:	0
Pre_Idle_CO2:	0
Pre_Idle_O2:	0
Low RPM:	0
Pre_Speed_CO:	0
Pre_Speed_HC:	0
Pre_Speed_CO2:	0
Pre_Speed_O2:	0
High_RMP:	0
Emiss_PF_Flag:	
Emiss_Cost:	0
Total Fee:	5
OVRL_Test_Result:	P
OBD_RDY_FUEL	1
CO_RESULT_2500	

Next Screen

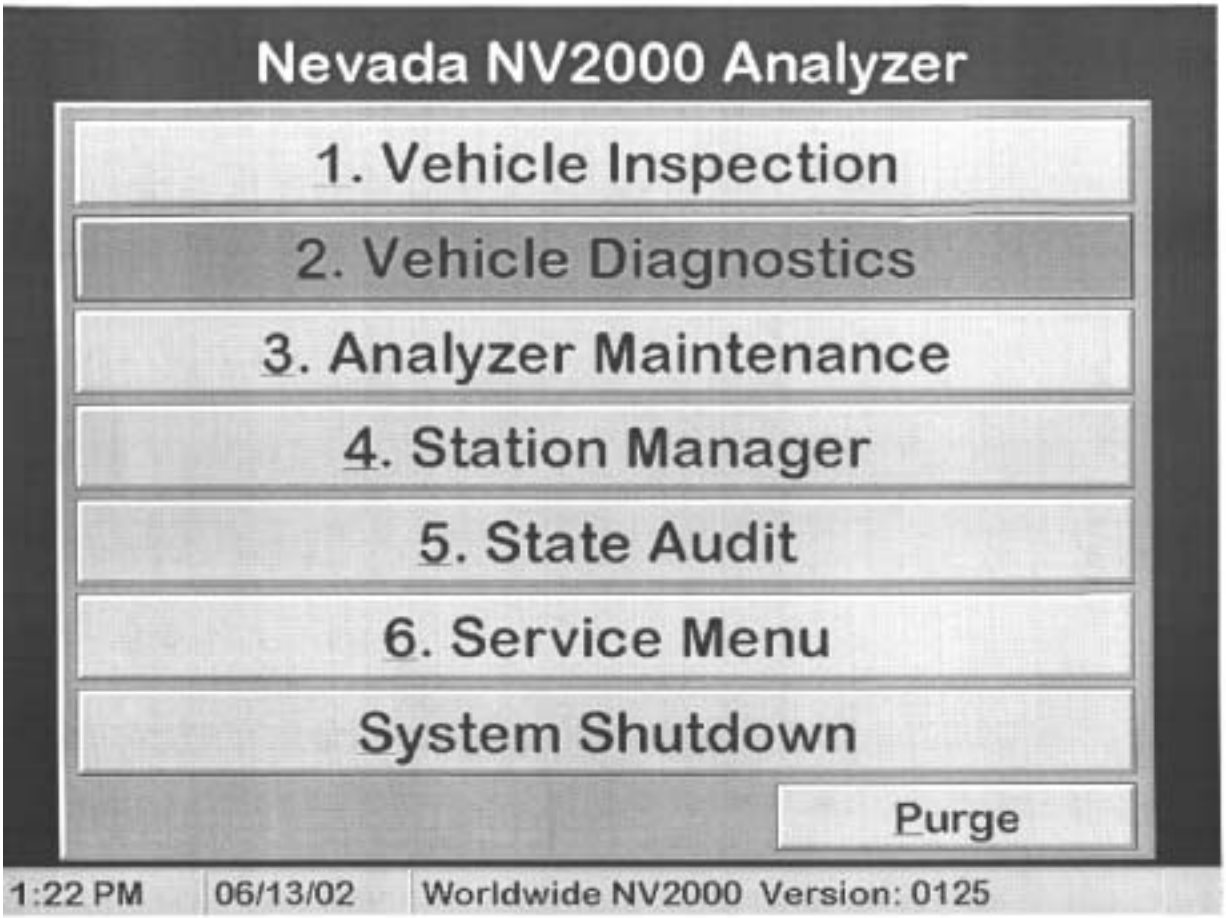
Next Record | Previous Record | Search | Exit

Print Vehicle Report | Print Audit Report

1:16 PM 06/13/02

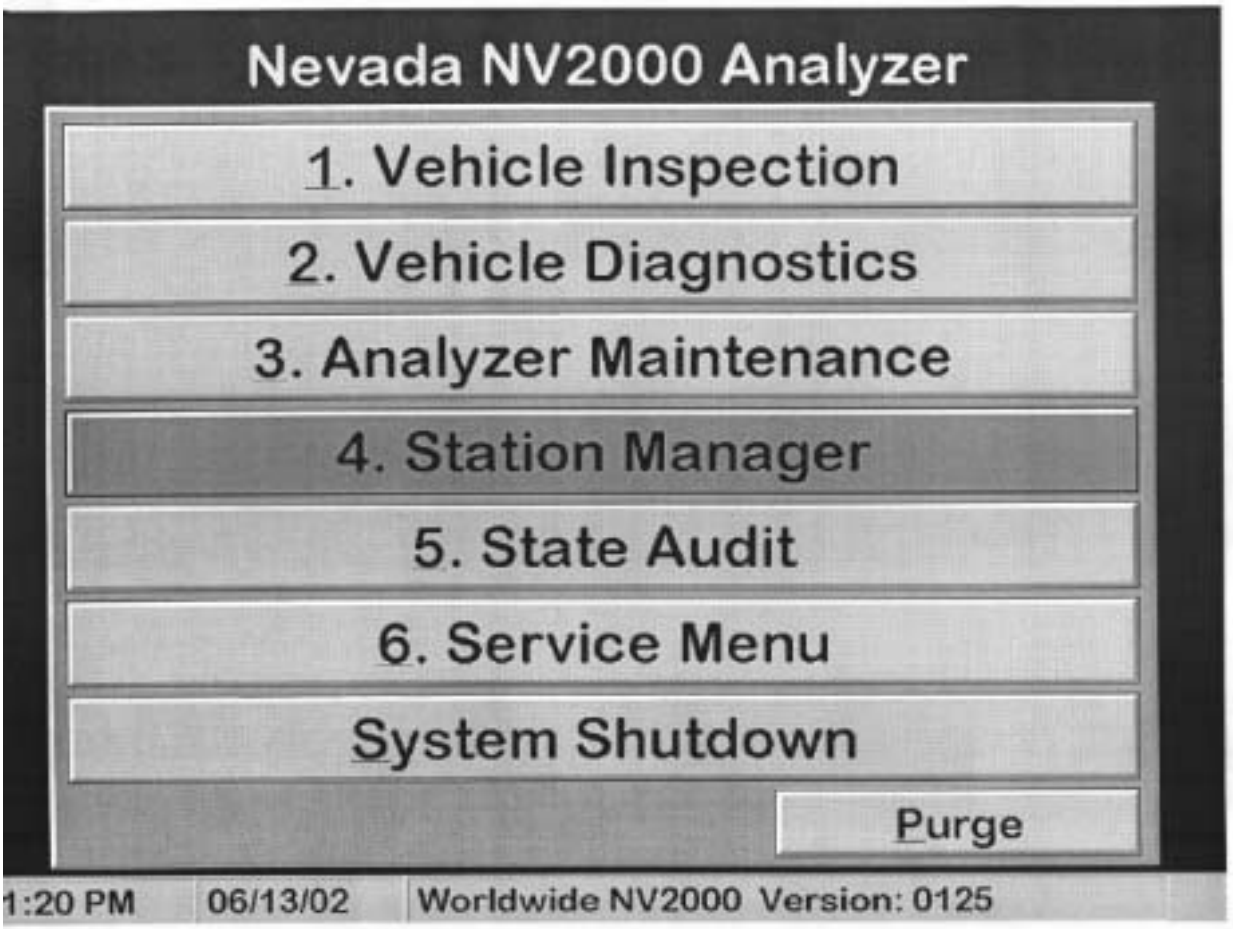


- The training mode allows a non licensed tech to practice on the machine in preparation for the techs licensing test. A TECH CANNOT PRACTICE IN THE TEST MODE!

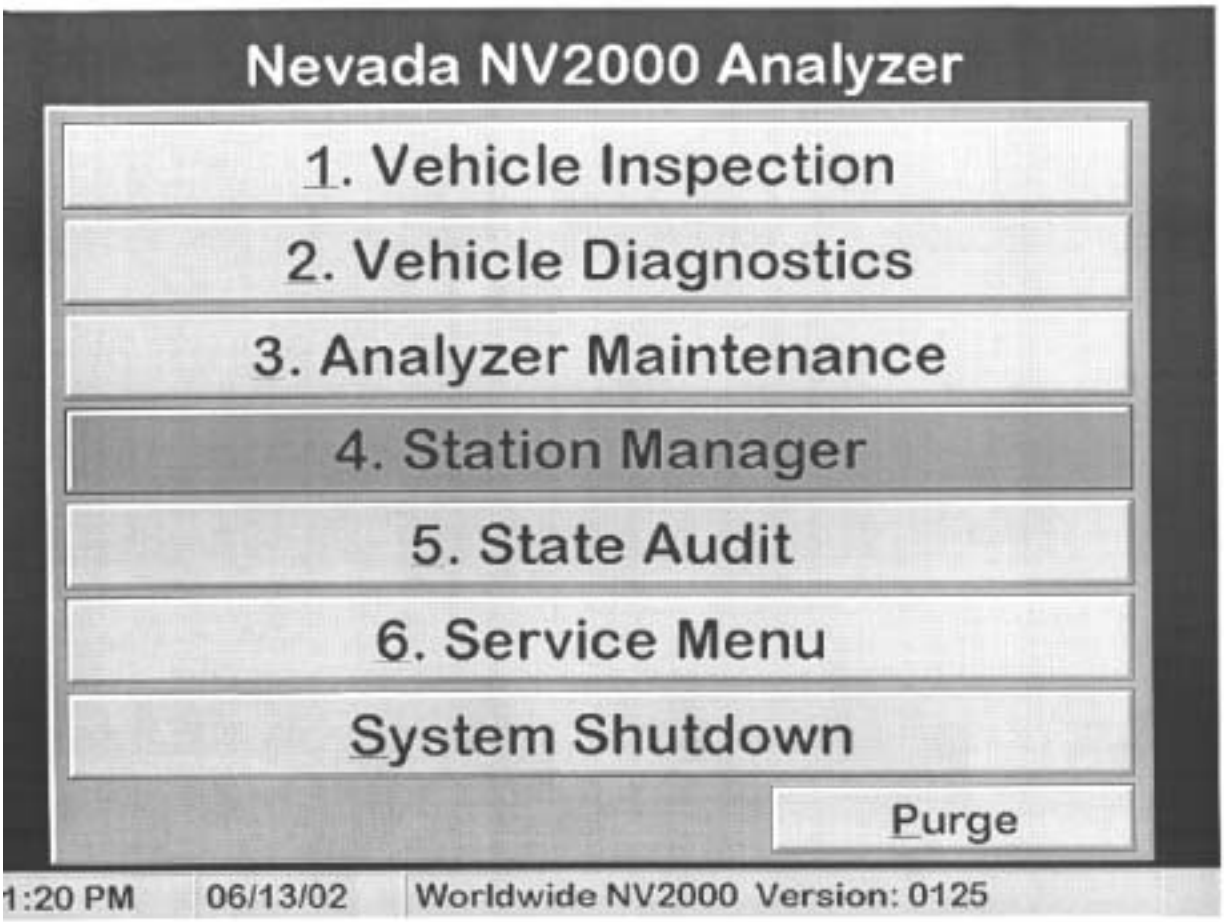


- **This menu can be used for:**

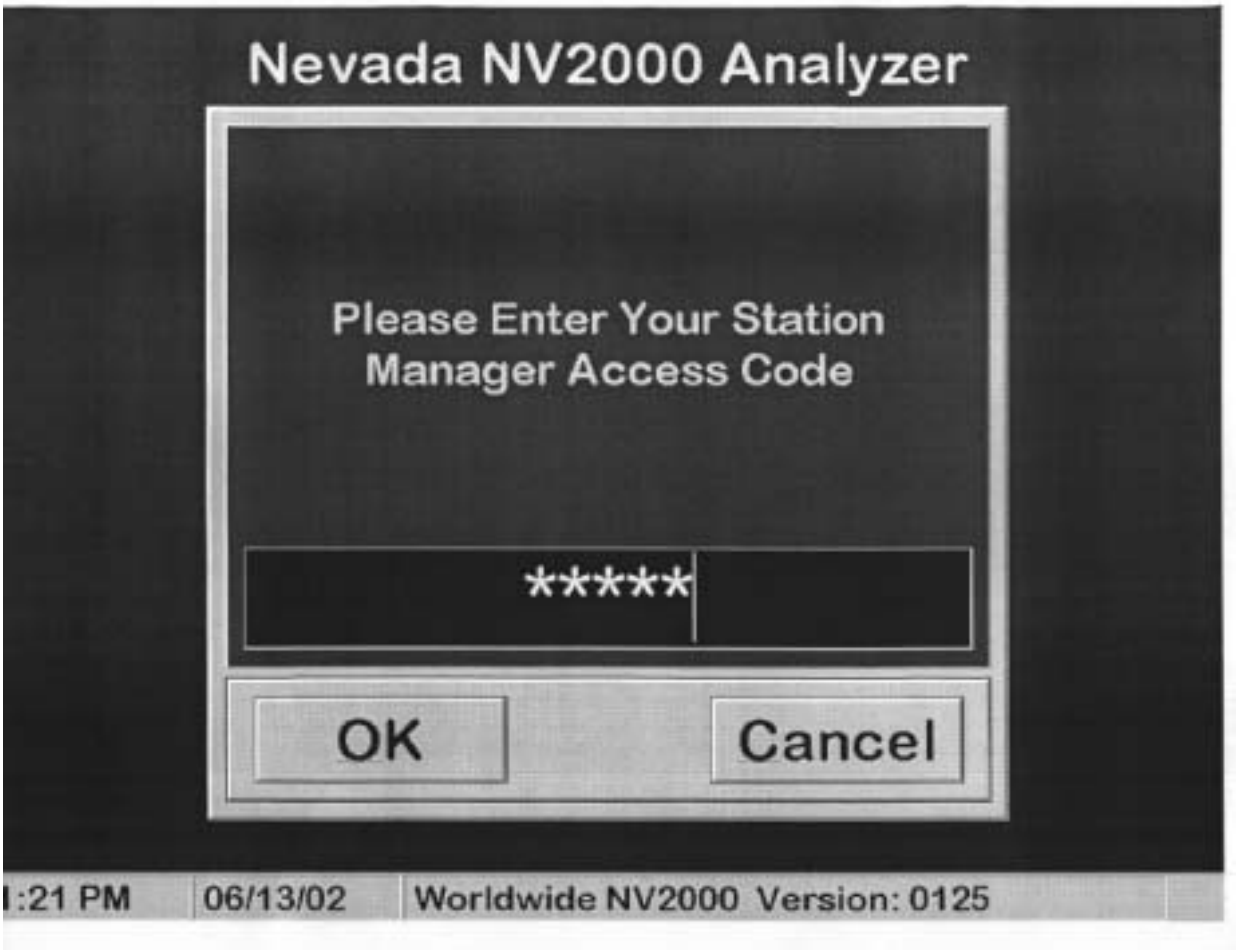
- Checking emissions output during the repair process.
- Check OBD codes, MIL status, readiness code status, and to clear diagnostic trouble codes (DTC's).
- Verify a good tach signal on the vehicle.
- Zero the analyzer.
- Practice an OBDII test.



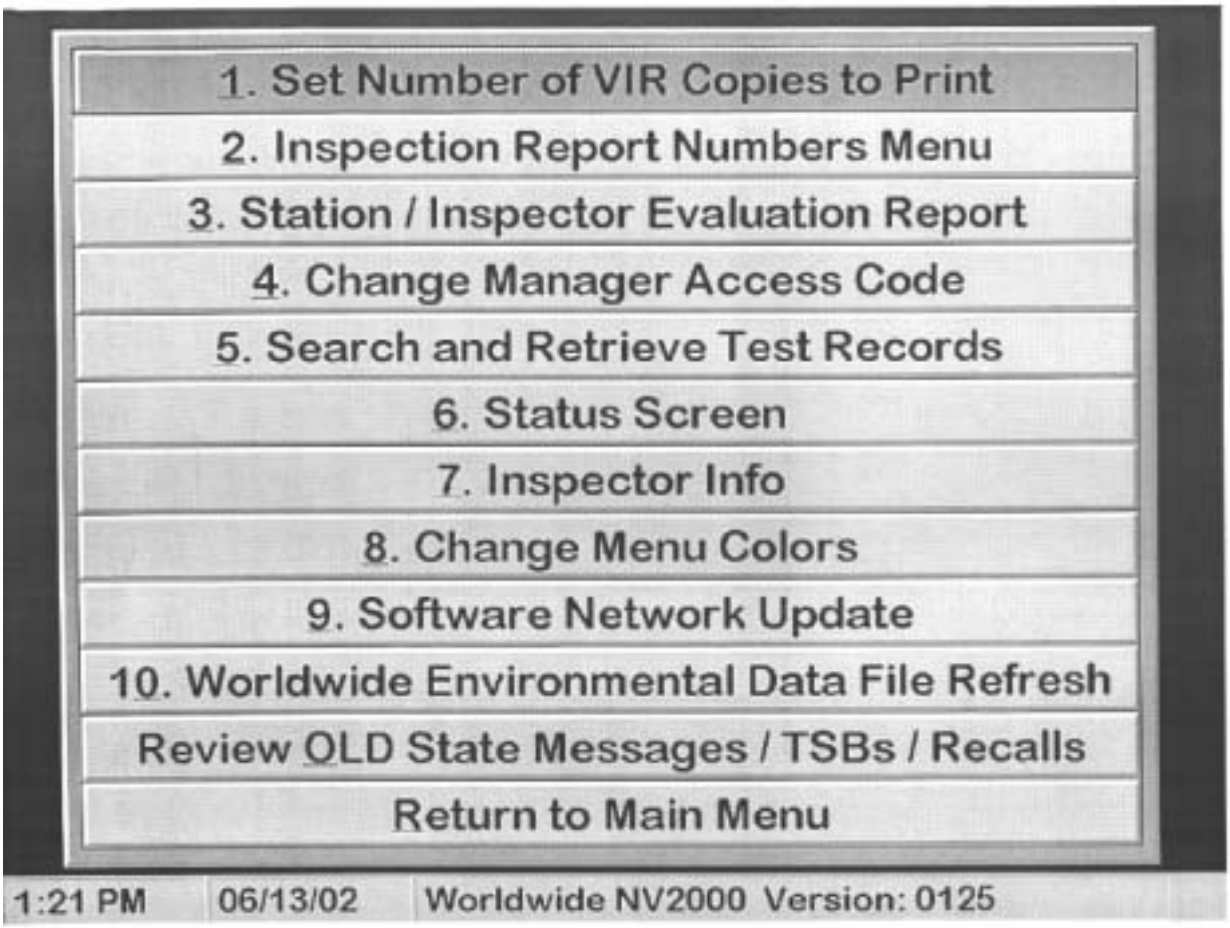
- To purchase VIR'S using the analyzer you must be enrolled in a MCI program.
- You then click on No.4 Station Manager.



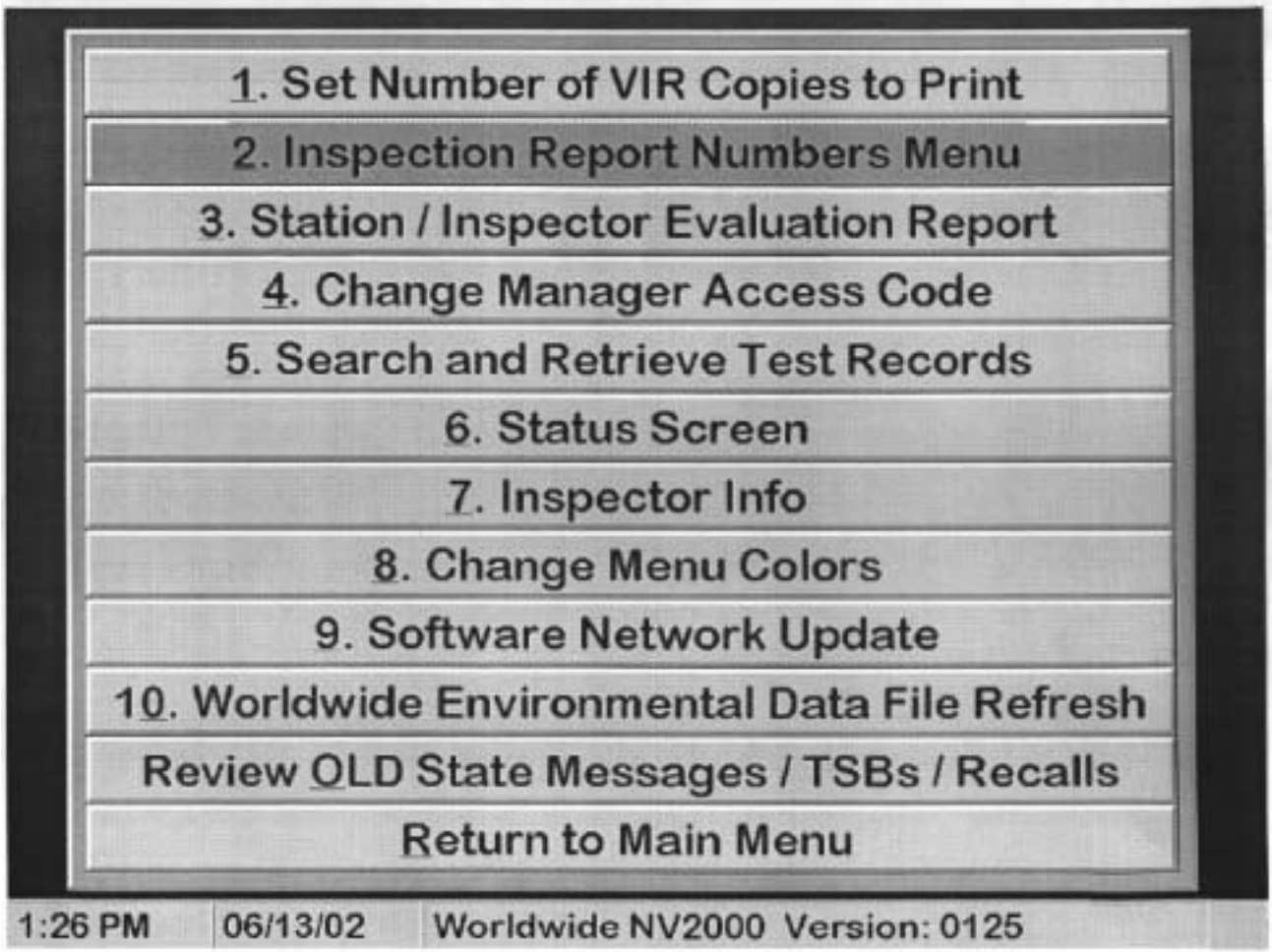
- Allows access to menus:
  - Record Keeping
  - Updates



- Enter your access code



- Purchase VIR with MCI approval
  - Not auto buy
- Track Station and Inspector records
- Perform Software Update
- Click on box number 9 and software will be updated automatically.



- Click on No. 2 Inspection report numbers menu.

- From this screen you can purchase VIR'S. (Follow the prompts)
- Set the lower VIR count limit for automatic purchases.
- Set the automatic reorder parameters.
- Note: You must be set up with MCI to auto purchase!